Naval Research Laboratory

Washington, DC 20375-5320

NRL/MR/6115--01-8500

Anacostia Wet Weather Receiving Water Monitoring Survey: Event 1

J.W. POHLMAN
C.S. MITCHELL
C.M. MILLER

Geo-Centers, Inc.
4640 Forbes Boulevard, Suite 130
Lanham, MD

R.B. COFFIN

Chemical Dynamics and Diagnostics Branch
Chemistry Division

January 29,2001

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY (*Leave Blank*)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	January 29, 2001	Final

4. TITLE AND SUBTITLE

Anacostia Wet Weather Receiving Water Monitoring Survey: Event 1

5. FUNDING NUMBERS

6. AUTHOR(S)

J.W. Pohlman,* C.S. Mitchell,* C.M. Miller,* and R.B. Coffin

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Naval Research Laboratory
Washington, DC 20375-5320

8. PERFORMING ORGANIZATION REPORT NUMBER

NRL/MR/6115--01-8500

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

Washington Council of Governments
777 North Capitol St., N.E.
Washington, DC 20002-4239

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

*GEO-Centers, Inc., 4640 Forbes Boulevard, Suite 130, Lanham, MD 20706

12a. DISTRIBUTION/AVAILABILITY STATEMENT

Approved for public release; distribution is unlimited.

12b. DISTRIBUTION CODE

13. ABSTRACT (*Maximum 200 words*)

The Naval Research Laboratory (NRL), working in conjunction with the Metropolitan Washington Council of Governments (MWCOG), monitored overflows of the combined sewer system (CSS) and separate storm water system (SSWS) in the Anacostia River in the District of Columbia. The NRL/MWCOG contribution is part of a larger effort by the District of Columbia Water and Sewer Authority (WASA) to develop a Long Term Control Plan (LTCP) for the combined sewer system in the District of Columbia.

14. SUBJECT TERMS

Anacostia river
Water quality
Rain event
Combined sewer outfall

15. NUMBER OF PAGES

123

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UL

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std 239-18
298-102

INTRODUCTION

The Naval Research Laboratory (NRL), working in conjunction with the Metropolitan Washington Council of Government (MWCOG), monitored overflows of the combined sewer system (CSS) and separate storm water system (SSWS) in the Anacostia River in the District of Columbia. The NRL/MWCOG contribution is part of a larger effort by the District of Columbia Water and Sewer Authority (WASA) to develop a Long Term Control Plan (LTCP) for the combined sewer system in the District of Columbia.

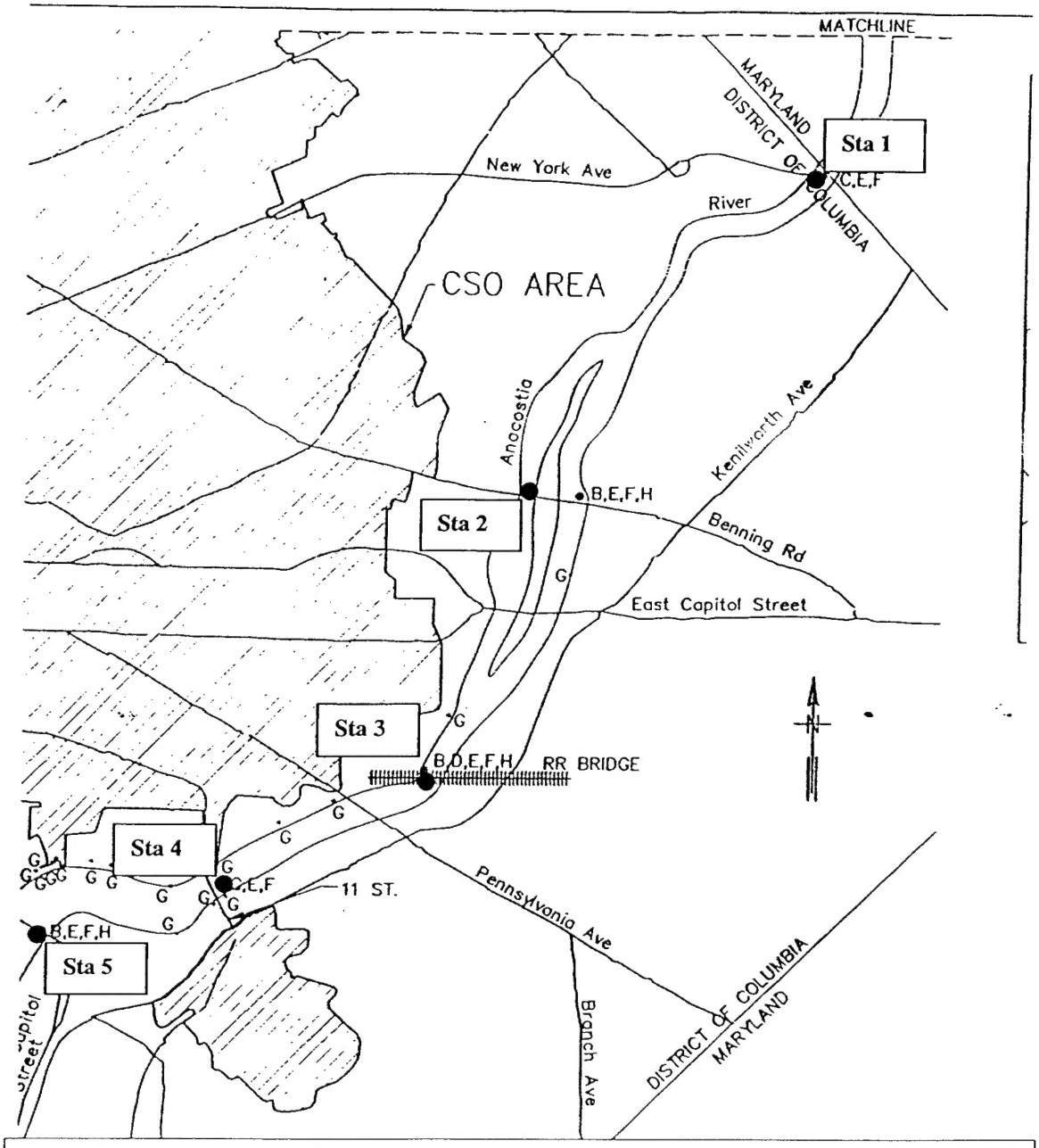
NRL monitored four rain events. This report includes the data, QA/QC controls and analysis of the data for Event 1. The Event 1 sampling began on March 16, 2000 at 18:05 and ended on March 18, 2000 at 15:10. A log of the field and laboratory conditions was maintained by field personnel. Copies of these notes can be found in Appendix 1

Sampling was conducted at 5 stations located near CSS outfalls on the Anacostia River which are located at the following locations (See Graphic A for location of stations):

Station 1: Located beneath the New York Ave. Bridge at the DC/Maryland district- / stateline.
Station 2: Located beneath the Benning Rd. Bridge near the PEPCO Power Station.
Station 3: Located at the railroad bridge at the northern end of Anacostia Park
Station 4: Located beneath the Anacostia Bridge (11th Street)
Station 5: Located at Douglas Bridge (South Capital Street)

Event Station_ID	Routine Station_ID	Description	Latitude	Longitude	River_mile
1	FA01	DC/MD Line	38.9165	-76.9443056	6.56
2	FA02	Benning Rd	38.8968611	-76.9625833	4.57
3	FA03	Penn. Ave	38.8785833	-76.9669444	2.85
4	FA04	11th St.	38.8715	-76.9901389	2.1
5	FA05	S. Capitol St.	38.8680833	-77.0068333	0.97

Manuscript approved October 10, 2000.



Graphic A: Anacostia River sampling stations

According to the CSO overflow data provided to NRL by Greeley and Hansen, there was one overflow event during the period of Event 1. 3.06 million gallons of overflow were measured at the Northeast Boundary CSO. This CSO is in the closest proximity to Station 2.

Quality Assurance / Quality Control

Performance Evaluation (PE) data from Ammonia, Total Oxidizable Nitrogen (TON: NO_3^- and NO_2^-), o-Phosphate, Total Phosphate and TKN from water pollution (WP) and water source (WS) samples were submitted to Analytical Products Group on September 15, 2000. For the WP samples, our laboratory passed all analyses with the exception of Total Phosphates. Our analysis of this parameter for both the WP and APG+ samples was 0.6 mg/L higher than the accepted range. Considering the accuracy of the other PE measurements we reported, the problem was doubtless with the persulfate digestion procedure. Chesapeake Analytical Laboratory, an independent lab contracted by Geo-Centers, Inc. to analyze TKN samples, passed the WP and WS evaluations for TKN. Results from the performance evaluation are included in Appendix II. Results from the WS evaluation will be released on October 5, 2000. Upon receipt, NRL will forward copies of this report to MWCOG.

Chain of Custody (COC) forms and temperature blanks accompanied the transfer of all samples from the field lab to NRL and from NRL to Chesapeake Analytical Laboratory. Because a large number of samples transferred, it was impossible to itemize each sample in the COC forms. Instead, sets of samples (e.g. all TKNs from cycles 4-6) were recorded as a single entry. This simplification made it possible to maintain efficient sample transfer during the event. COC forms are found in Appendix III.
Chesapeake Analytical Laboratory (CAL), Inc. (301-932-4775) of Waldorf, MD was contracted to process and analyze TKN samples. COC forms from CAL are included in Appendix III. QA/QC requirements from CAL are in Appendix II.

METHODOLOGY

Sampling

Qualified NRL employees and contractors collected samples from each of the stations approximately every 4 hours. Field technician log sheet is in Appendix I. In theory, over the 48-hour period, 12 sampling cycles (hereafter referred to as "cycles") were completed. Inclement weather, however, limited the sampling to 11 cycles for this event. Certified US Army Corps of Engineer personnel piloted the boats and accompanied filed personnel. Water samples were collected from 1m depth in a Van Dorn Bottle and transferred to appropriate storage containers (described below) for processing and analysis.

Biological Oxygen Demand (BOD)

Methods

Duplicate samples were collected in 60ml BOD bottles with ground glass stoppers. The 5 Day BODs were determined as described by EPA method 405.1. The procedure to determine the 5 day BOD follows the standard technical procedure (SM5210B) as previously described (Standard Methods for the Examination of Waters and Wastewaters, 20th edition, 1998). Dissolved oxygen (DO) was measured by potentiometric titration. The analytical determination follows the method described by Oudot et al. (1987). See the Quality Assurance Project Plan for reference (on file at WASCOG).

QA/QC

Duplicate samples were run for every sample although QA/QC scheduling required duplicate samples once every 20 samples. The titrant (0.14M sodium thiosulfate) was standardized with a standard KIO_3 solution during the event. Spikes and analytical standards are not applicable to this method. Because the residual DO in all bottles after 5 days was >1 mg/L, dilution water blanks and glucose/glutamic acid checks were not necessary. Laboratory data sheets for the BOD analysis are located in Appendix IV.

Field Problems

None.

Total Suspended Solids and Volatile Suspended Solids (TSS and VSS)

Methods

Duplicate samples were collected in 250ml Nalgene bottles. The full volume of the bottle was filtered through a preweighed 48mm GFF filter in the field lab. Loaded filters were stored at –20°C until analysis. The TSS and VSS concentrations were determined as described by EPA method 160.2 and 160.4, respectively. The procedure follows the standard technical procedure, SM2540D&E, respectively (Standard Methods for the Examination of Waters and Wastewaters, 20th edition, 1998).

QA/QC

Duplicate samples were run for every sample although QA/QC scheduling stated that duplicate samples were required once every 20 samples. Spikes and analytical standards are not applicable to this method. Filter blanks for VSS analysis were determined for each set of samples. Equipment Blanks and Field Blanks were collected and analyzed as noted in Appendix II. Laboratory data sheets for TSS and VSS analysis are in Appendix IV.

Field Problems

None.

Nutrients (NO_3^- & NO_2^- as N, NH_4^+ as N, o-PO_4^+ & Total PO_4^-)

Methods

Duplicate samples were collected in 250ml Nalgene bottles. Samples were filtered through ashed (450°C for 4 hrs) 48mm GFF filters and collected in clean 60ml Nalgene bottles. Samples for N as nitrate & nitrite (also known as and hereafter referred to as Total Oxidizable Nitrogen (TON)), N as ammonia and o-phosphate were collected in one bottle, and samples for total phosphate were collected in another bottle. Samples were frozen at –20°C until analysis (TON, NH_4^+ and o-PO_4^+) or digestion (Total PO_4^+). TON, ammonia and phosphate (for total and o-phosphate) were analyzed on an Amicron Nutrient Analyzer (OI Analytical, College Station, TX) following the methods reported below.

TON concentrations were determined as described by EPA method 353.2, "Determination of nitrite by semi-automated colorimetry." The procedure follows the standard technical procedure, SM4500-NO_3^- I, Cadmium Reduction Flow Injection (Standard Methods for the Examination of Waters and Wastewaters, 20th edition, 1998). This method reduces the ambient nitrate to nitrite, and the combined nitrite (reduced nitrate + ambient nitrite) is analyzed.

Ammonia concentrations were determined as described by EPA method 350.1, "Determination of ammonia by semi-automated colorimetry." The procedure follows the standard technical procedure, SM4500-NH_3G, Automated Phenate Method (Standard Methods for the Examination of Waters and Wastewaters, 20th edition, 1998).

Orthophosphate concentrations were determined as described by EPA method 365.1, "Determination of phosphate by semi-automated colorimetry." The procedure follows the standard technical procedure, SM4500-PG, Flow Injection Analysis for Orthophosphate (Standard Methods for the Examination of Waters and Wastewaters, 20th edition, 1998).

Total phosphate concentrations were determined by the standard technical procedure, SMP4500-PH, "Manual Digestion Flow Injection Analysis for Total Phosphorus" (Standard Methods for the Examination of Waters and Wastewaters, 20th edition, 1998). Organic phosphorus was converted to phosphate by the persulfate digestion procedure.

QA/QC

Duplicate samples were run every 10 samples. Method blanks and laboratory control samples were run according to schedule. Equipment Blanks and Field Blanks were collected and analyzed as noted in Appendix II. Laboratory data sheets for the nutrient analyses are in Appendix IV.

Field Problems

None.

Dissolved, Total and Particulate Organic Carbon (DOC, TOC & POC)

Methods

Duplicate samples were collected in 250ml Nalgene bottles. TOC and DOC samples were transferred from the sample bottles into precombusted (450°C for 8 hrs) glass amber ampoules via syringe. Samples for DOC analysis were filtered through precombusted (450°C for 4 hrs) 13mm GFF filters. Twenty microliters of phosphoric acid (85%) was added to the ampoules prior to adding the sample. Ampoules were heat sealed and stored at 4°C until frozen at NRL prior to analysis. TOC and DOC concentrations were determined by the standard technical procedure, SM5310B (Standard Methods for the Examination of Waters and Wastewaters, 20th edition, 1998). Analysis was performed on an MQ1001 Total Organic Carbon Analyzer (MQ Scientific, Washington). Particulate Organic Carbon (POC), a parameter not listed in the QAPP, was also analyzed for Event 1. This parameter was measured to test the efficiency of SM5310B for determining TOC. The total organic carbon (TOC) of a water sample is the sum of the dissolved and particulate (DOC + POC) constituents. Thus, the sum of the DOC and POC constituents should equal the measured TOC. However, because of particle flocculation and settling, it is likely the subsample injected into the high temperature oxidation column would not contain a proportional amount of the particulate fraction. We hypothesized the TOC method would underestimate the actual TOC, and to test this hypothesis, we measured the POC fraction. Particles from a measured volume of water were collected on a 13mm precombusted (450°C, 4hrs) GFF filter. These filters were placed in an acidic atmosphere for 24 hours to remove trace carbonates, dried and analyzed for carbon content and percent carbon composition on a Carlo-Erba Elemental Analyzer.

QA/QC

Duplicate samples were run for every sample. Analytical standards (or Laboratory control samples (LCS)) were run once per 20 samples, or once per batch, whichever was greater. Because of a slight drift in the instrumentation, the analytical standards were used to continuously update the standard curve. Equipment blanks and field blanks were collected and analyzed as noted in Appendix II. Laboratory data sheets for DOC, TOC and POC analyses are in Appendix IV.

Field Problems

None.

Total Kjeldahl Nitrogen (TKN)

Methods

Duplicate samples were collected in 250ml Nalgene bottles. Samples were preserved at pH<2 with H_2SO_4 and stored at 4°C until delivery to NRL, where they were frozen until analysis. Samples were analyzed by Chesapeake Analytical Laboratory, Inc. of Waldorf, MD by EPA Method 351.2.

QA/QC

Duplicate samples were run every 10 samples. Method blanks, matrix spikes and laboratory control samples were run according to schedule (See Appendix II). Equipment blanks and field blanks were collected and analyzed as noted in Appendix II. Raw data sheets received from CAL are in Appendix IV.

Field Problems

None.

Water Quality Parameters (Temperature, Conductivity, Dissolved Oxygen, pH & Turbidity)

Methods

Temperature (°C), conductivity (µS/cm), dissolved oxygen (DO) (mg/L) and pH were measured with a Hydrolab Datasonde 4 Water Quality Multiprobe (Hydrolab Corporation, Austin TX).

QA/QC

The instrument was maintained according to manufacturer's specifications and calibrated prior to each field event. Duplicate measurements were scheduled to be recorded once every 10 readings. Duplicate measurements are reported in Table 9.

Field Problems

Prior to the initiation of this project, the Datasonde 4 was sent to the manufacturer for repairs. The nephelometer was mistakenly removed while being repaired. During Event 1, because the data was recorded in the Datasonde 4, the absence of the nephelometer was not recognized. Its absence was realized during Event 2, at which time it was to late to get the probe installed for said event. We were unable to get the nephelometer replaced for any of the storm water events.

During Event 1, the primary Datasonde 4 malfunctioned during sample cycle 4. Consequently, no data from stations 1,2 &3 were obtained for that cycle. The primary Datasonde 4 was replaced with a second unit, but the second unit was not programmed to display specific conductivity. Thus, specific conductivity data for this Event was not recorded from cycles 4-11. Later, for reasons unknown, no water quality data was obtained for sample cycle 9.

RESULTS

Data from Event 1 is presented in the following order: Biological Oxygen Demand (BOD), Total Suspended Solids and Volatile Suspended Solids (TSS and VSS), Nutrients (NO_3^- & NO_2^- as N, NH_4^+ as N, o-PO_4^+ & Total PO_4^-), Dissolved and Total Organic Carbon (DOC and TOC), Total Kjeldahl Nitrogen (TKN) and Water Quality Parameters. A brief description and interpretation of the data is provided in this section. In conjunction with the plots provided, this interpretation is intended to provide some spatial (station averages and cycle summaries) and temporal (cycle averages and station summaries) insight. Hopefully, this preliminary perspective will serve as a useful guide for directing model development and detailed statistical analysis.

Data tables for each parameter are in the TABLES section. Field duplicate data is included or calculated into the tables. In Tables 2-6, every 10-20 samples the data column contains two values (x1/x2), which are the duplicate measurements. In the adjacent column to the right, a standard deviation is reported. This standard deviation was calculated using the duplicate values. It is recognized that a standard deviation should be calculated from a set of three samples, so consider the calculated standard deviations with that in mind. In some instances the duplicate measurements are listed on an independent record. If more than one duplicate was analyzed every 10-20 samples, the additional duplicate measurements may not be listed. In such instances, only the standard deviations are listed.

The plots referred to in the data interpretation are in the FIGURES section. The first figure for each parameter contains a plot with the cycle averages and a plot with the station averages. The second figure contains a station summary, which plots the parameter value at each station against the event time or cycle number. Cycle numbers represent each of the sample cycles and are separated in time by approximately 4 hours. For an exact cycle time see the collection time provided in the corresponding data table (TABLES Section). The third figure of each dataset contains a cycle summary that plots the parameter value against each station samples during the cycle.

Detailed coliform data from Event 1 was provided in a separate report submitted by Dr. Joanne Jones-Meehan. It is advisable to obtain those reports to compare the biological and chemical data. The complete coliform dataset is not included in this report. However, to help bridge the two reports, a brief description of the coliform data and representative plots courtesy of Dr. Joanne Jones-Meehan are included. The brief description of the coliform data precedes the results for this report and the representative plots are found in the FIGURES section.

Discussion of the data in this report will be stated in relative terms. For instance, rather than stating Station 2 had a BOD of 3.4mg/L, which was 2.1mg/L higher than that measured at Station 1, this report will state that the BOD at Station 2 was higher than the BOD measured at Station 1. For exact measurements, refer to the figures and data tables.

Coliforms

The highest **total** coliforms were enumerated from Station 2 (Figure 1). In samples collected 12 hours after the beginning of the rain event approximately 90000cells/100ml were counted. After 36 hours, Station 2 maintained the highest coliform count with an approximate count of 16000cells/100ml. Upriver and downriver of this station the total coliform counts were progressively less.

The **fecal** coliform counts followed a different pattern (Fig 2). Counts from samples collected 12 hours after the rain began were highest at Station 1 (@ 1700counts/100ml) and progressively decreased upriver. After 36 hours, however, Station 4 samples had the highest fecal coliform counts (@1700/100ml). Upriver and downriver of this station the fecal coliform counts were progressively less. Such a pattern suggests two discrete inputs of coliform affected water.

Biological Oxygen Demand (BOD)

The data is presented in Table 1 and the plots appear in Figures 3-5. The highest average BOD was measured during Cycle 6 (Fig 3A), approximately 24 hours after the rain event began. Station 2 had the highest average BOD (Fig 3B), which is the same location where the total coliform count was the highest.

Total Suspended Solids and Volatile Suspended Solids (TSS and VSS)

The data is presented in Table 2 and the plots appear in Figures 6-8. Resembling the BOD pattern, the highest average TSS concentration was measured from Cycle 8 and at Station 2 (Fig 6). Average VSS concentrations were also highest during Cycle 8 and at Station 2, but they were not significantly higher than the other cycles or stations.

Nutrients: TON (Total Oxidizable Nitrogen -- NO_3^- & NO_2^-), NH_4^+ as N, o-PO_4^+ & Total PO_4^-

Ammonia and TON: The ammonia and TON data are presented in Table 3, and the plots appear in Figures 9-11. Following an initial increase between cycles 1 and 2 for both TON and NH4 (Fig 9), the concentrations remained fairly consistent during the course of the event. NH4 concentrations continued to increase for the duration of the envent, but only slightly. Excluding Cycle 1, TON was remarkably consistent during each cycle. Ammonia in the river was somewhat less consistent as evidenced by periodic spikes and dips seen in several plots (Fig 10), but this may be due to instrumental drift. Ammonia is the analyte most sensitive to instrumental drift. Nevertheless, there are some interesting variations in the ammonia levels. Excluding Cycle 1, when the concentrations of NH4 throughout the river were similar, the pattern of ammonia concentrations increasing from upriver to downriver was consistent. On the average, Station 4 had the highest concentration.

Phosphates (Ortho and Total): The ammonia and TON data are presented in Table 3, and the plots appear in Figures 12-14. Phosphorus concentration (ortho and Total) were consistently low throughout the event. Total phosphates were, not surprisingly, more abundant than ortho-phosphates. However, other than a few concentration spikes they do not show any clear patterns regarding outfall indications. Station 2 displayed a consistent increase throughout the event (Fig 13B). Perhaps the most interesting observation about

the o-PO4 data is that the average concentration per cycle drop from near 0.03 mgP/L during cycle 1 (Fig 12A) to near 0 in all subsequent cycles at all stations, except for cycle 6 when concentrations increase slightly. Station 4 had the highest initial concentration during cycle 1. Using presence or absence of o-PO4 as an indicator of inputs to the river, times previous to Cycles 1 and 6 seem most likely.

Dissolved, Total and Particulate Organic Carbon (DOC, TOC & POC)

The data is presented in Tables 4,5,6&7 and the plots appear in Figures 15-19. DOC, TOC and POC concentrations increased gradually throughout the Event (Figure 15a). The most rapid period of increase appeared at Station 1 between and including cycles 2 to 4 (Figure 16a). Station 2 maintained the highest concentrations throughout the event (Figure 16b: notice exaggerated scale). A period of increasing organic carbon concentrations is also observed at stations 2 and 3 during the latter cycles (9-11) of this event (Figures 16b&c). On the average, concentrations decrease gradually downriver from Station 2 (Figure 15b).

Figure 18 compares the two different methods we used to measure TOC during this event. (TOC values appearing in the previous plots followed SM5310B, as prescribed by the QAPP.) The first column for each station represents TOC results obtained using method SM5310B. The second column for each station represents TOC concentrations obtained by adding the measured DOC concentration and the measured POC concentration. Since DOC and POC constitute the entire aquatic organic pool summing them is a suitable proxy for TOC. The standard method yielded TOC values 15-25% lower than the values obtained by summing the DOC and POC. By this measure, it appears the TOC data appearing in this report underestimates the actual TOC.

The POM percent organic carbon (%OC) data is presented in Figure 19. (Note: This data is provided courtesy of NRL. It is not listed as a required parameter in the QAAP.) The POM%OC data exhibits a positive correlation with the POM concentration (r2=0.76). This suggests that the particulate input into the water column (be it from outfalls or resuspension) is of higher organic carbon content than what is typically present. The result of this increase of available organic carbon may affect the microbiology in the river. For instance, the BOD increases during the sampling event alongside the POC. Likewise, the DOC, which also fuels microbial metabolism may also be responsible for the increase in BOD. At any rate, identifying all the factors that capable of impacting the riverine ecology is of critical importance.

Total Kjeldahl Nitrogen (TKN)

The data is presented in Table 8, and the plots appear in Figures 20-22. TKN showed little variation in the cycle average during Event 1, but Station 3 and the downriver stations (3-5) had higher overall TKN than the upriver stations (1&2). This pattern is counter to that observed in the BOD, solids and organics where the higher concentrations were measured upriver (Stations 1&2).

Water Quality Parameters

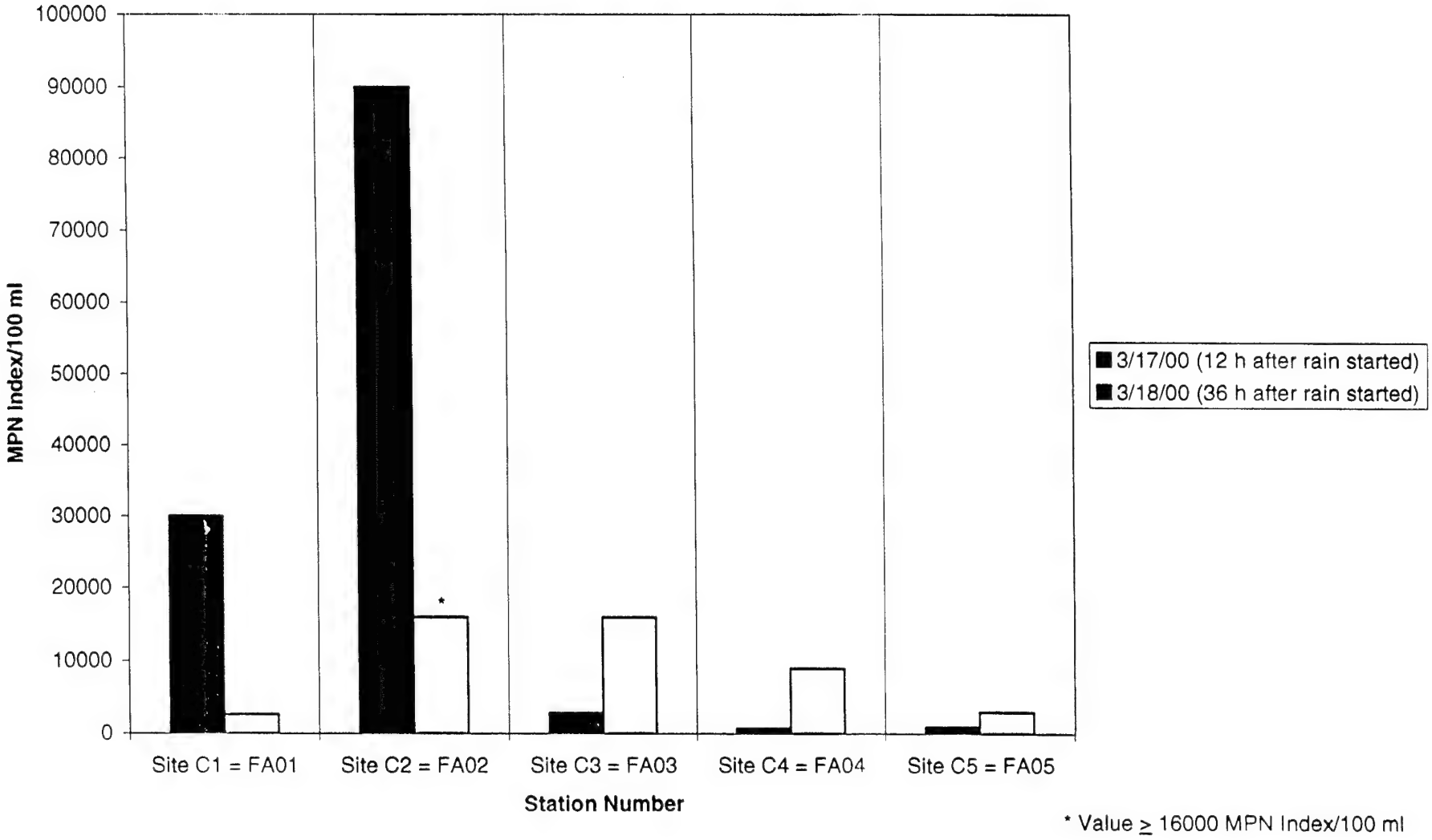
The data is presented in Table 9, and the plots appear in Figures 23&24. The average temperature during Event 1 was between 11 and 12°C and decreased throughout the event. Temperatures at Station 1 were slightly lower than the other stations which had almost identical average temperatures. The average pH did not change throughout the event and was highest at Station 5. Specific conductivity was also lowest at Station 5. The average dissolved oxygen (DO) did not change appreciably during the event and was highest at Station 1. The variations measured at Station 1 were most likely due to tidal dilution by the Potomac River.

SUMMARY

Stations 2 and 4 consistently exhibited the highest values among the water quality parameters we measured. Initial increases among most of the parameters (BOD, coliforms, nitrogen, phosphate, organics) in the upriver stations during the 1st and 2nd cycles was followed by a slack period when concentrations leveled off or decreased. Then, near the time of Cycle 6 the concentrations of some parameters (particulates, BOD, coliforms, phosphorus, organics) increased again at the downriver stations. Despite the small CSO overflow reported, there was substantial impact on the water quality and microbiology of the river on at least two occasions in two different locations. The outfalls monitored did not provide an accurate measure of the impact of this storm on the Anacostia River.

FIGURES

Figure 1. Anacostia River (Storm Event)
Method #9221B (Total Coliforms)



* Value ≥ 16000 MPN Index/100 ml

Figure 2. Anacostia River (Storm Event)
Method #9221E (Fecal Coliforms)

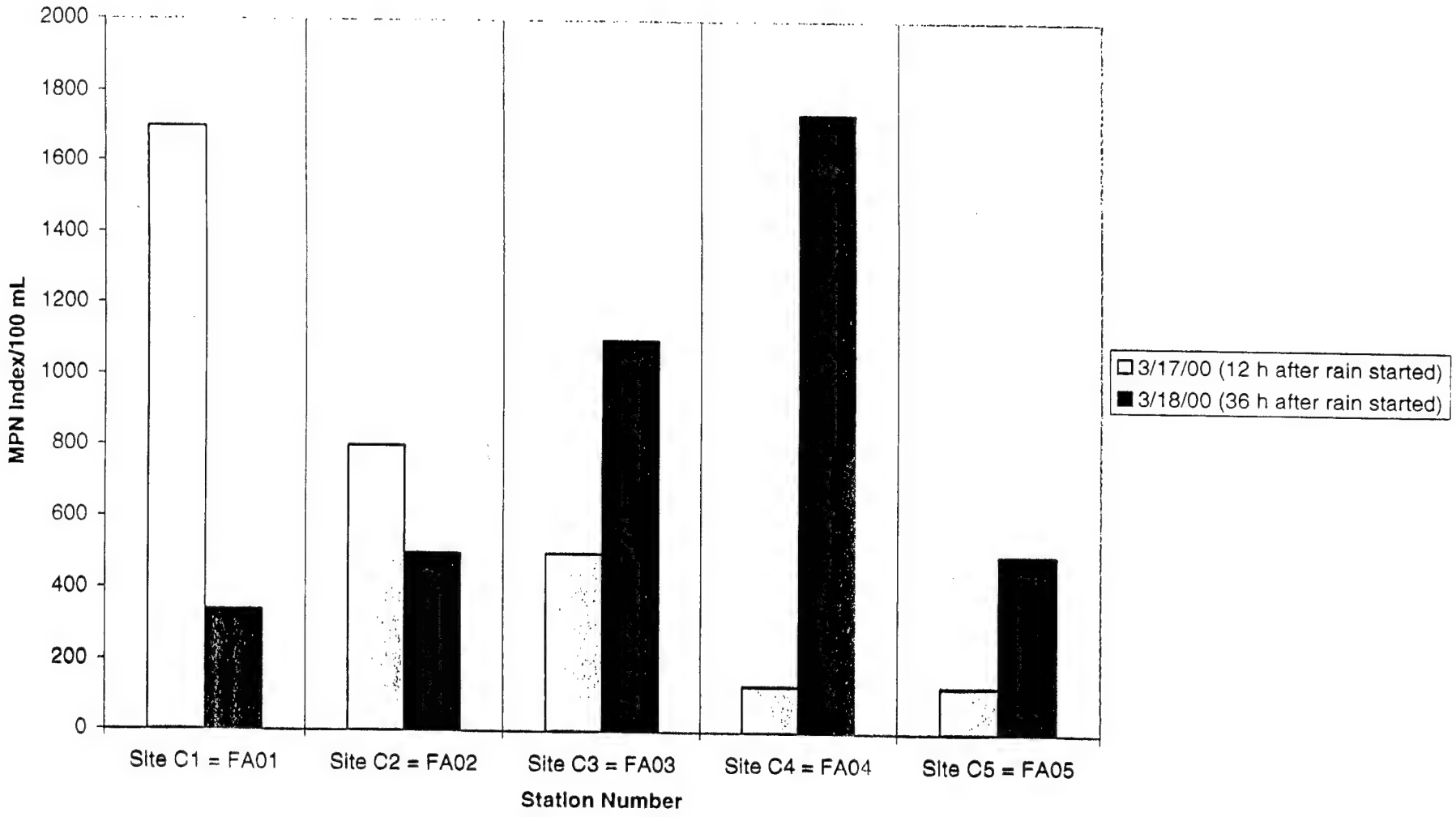
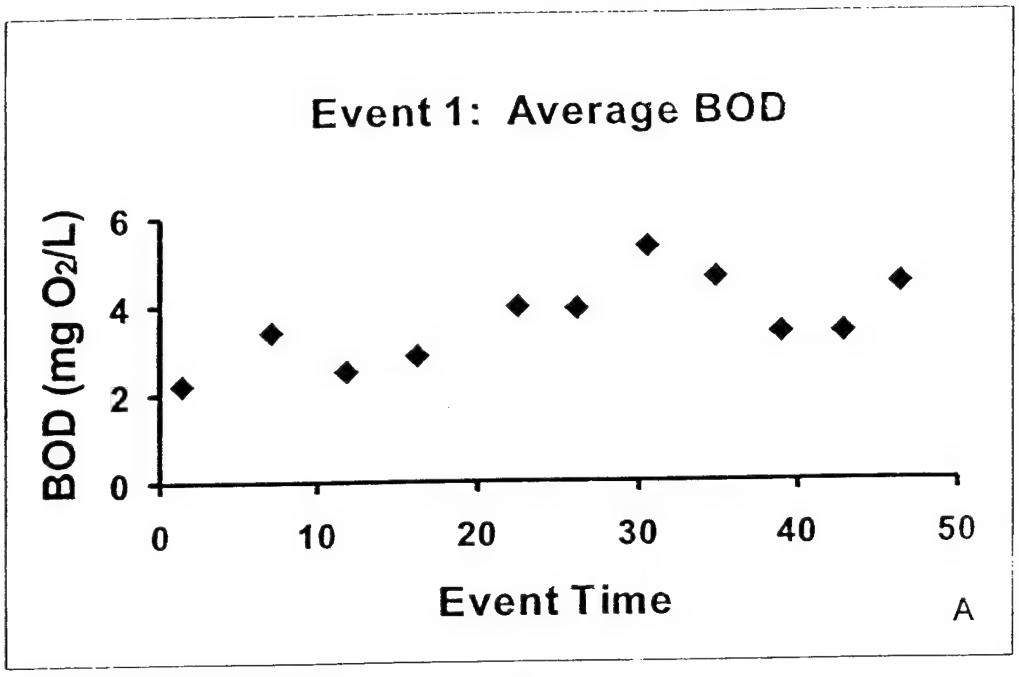


Figure 3: BOD, Event 1



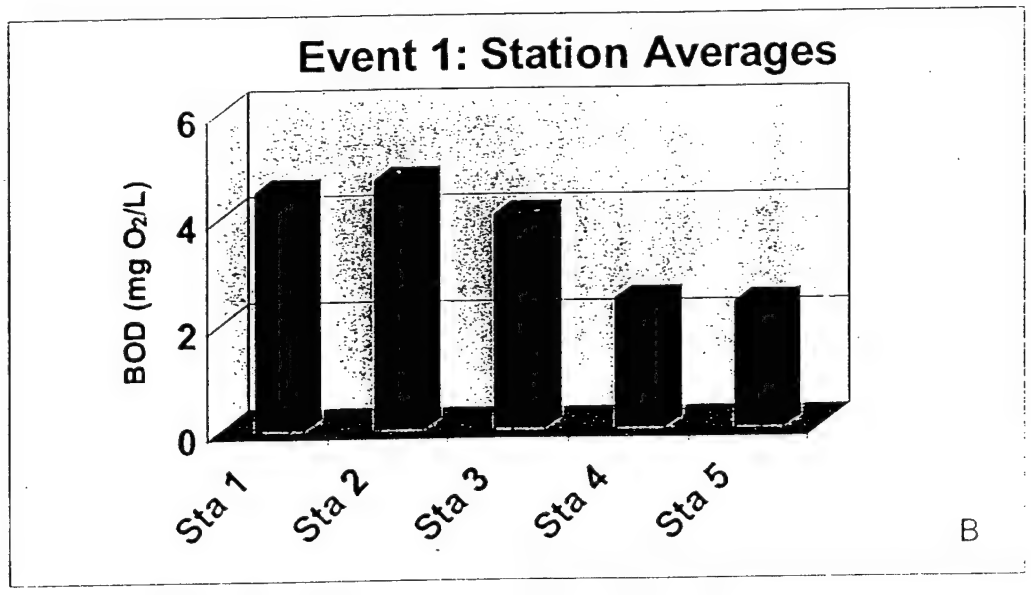
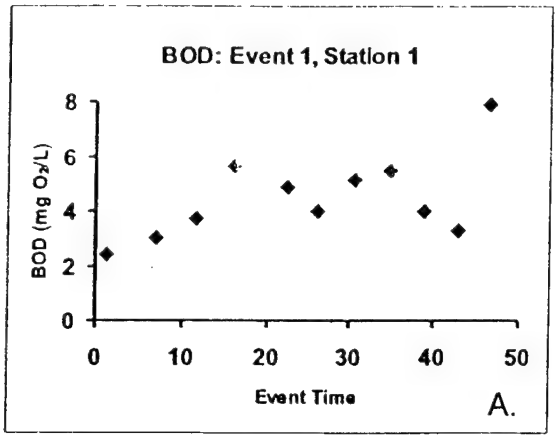
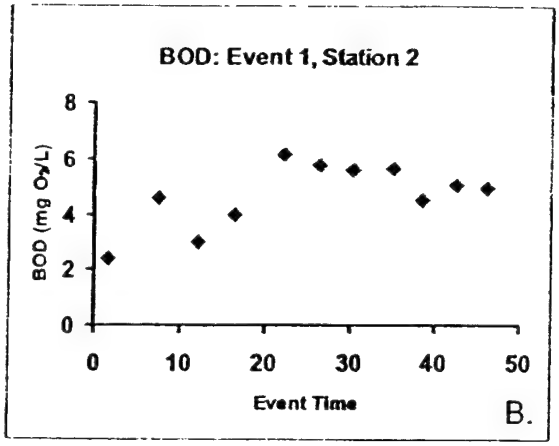
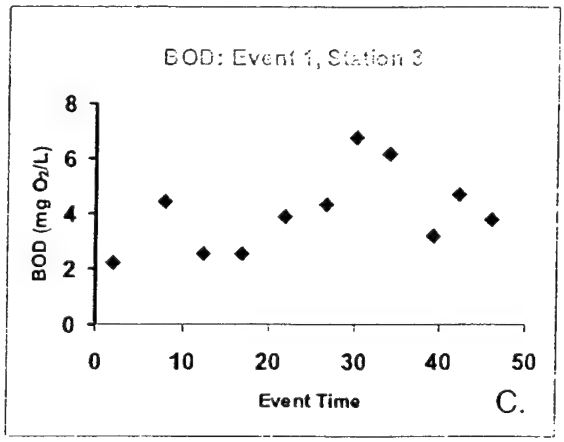
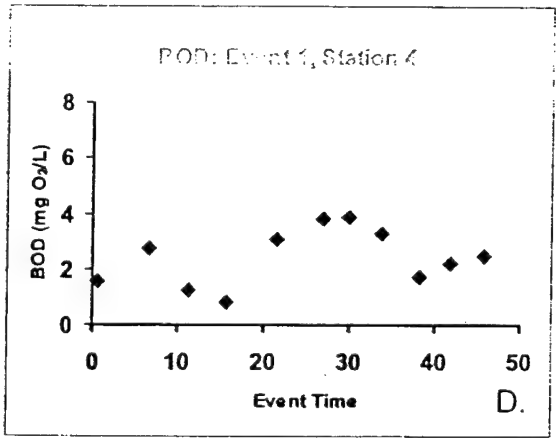


Figure 4: BOD, Event 1, Station Summary









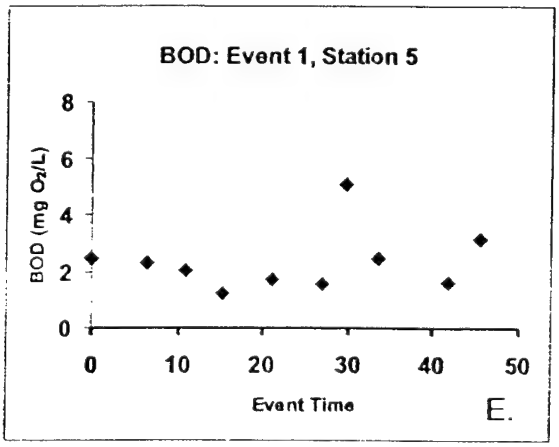
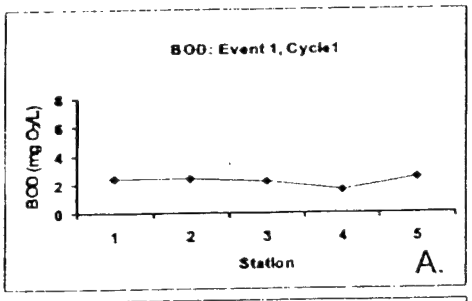
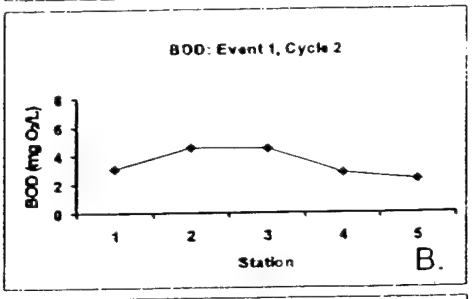
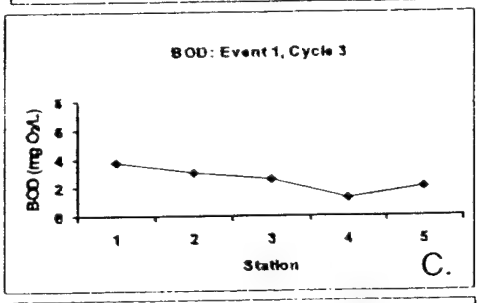
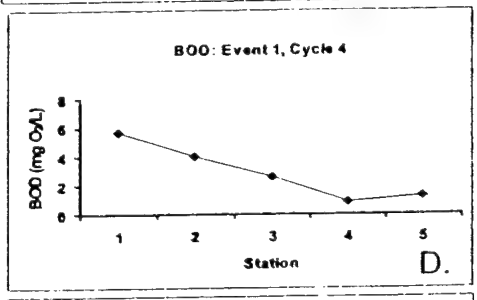


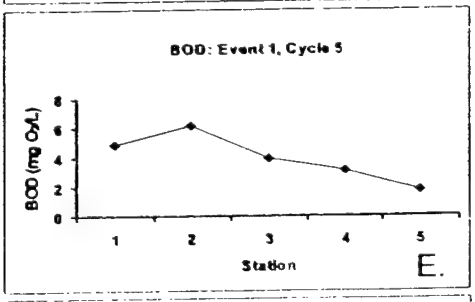
Figure 5: BOD, Event 1, Cycle Summary

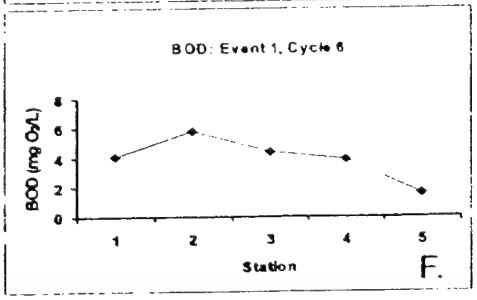


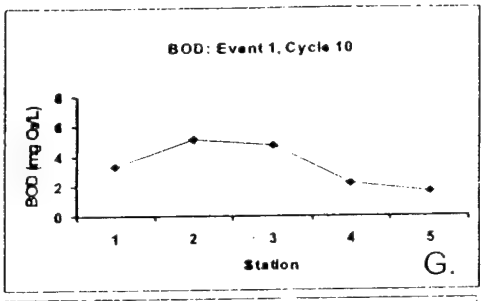


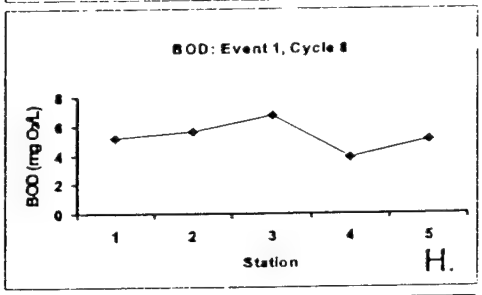


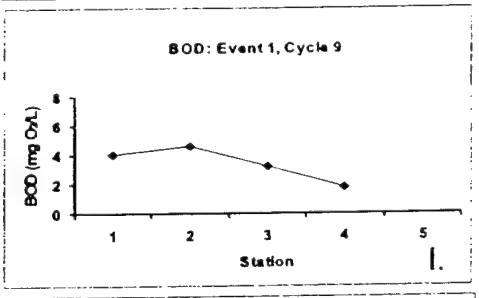


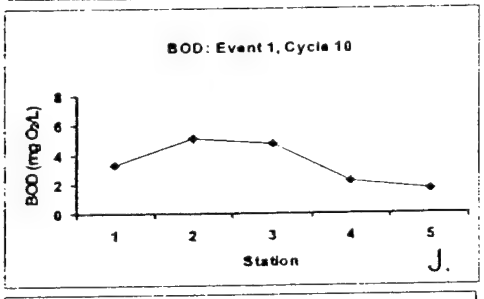












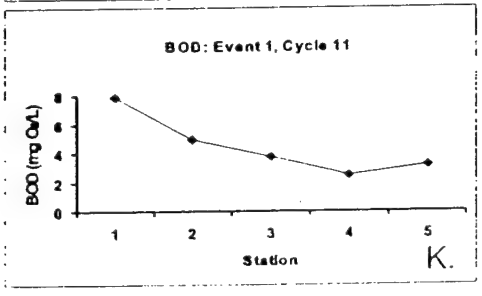
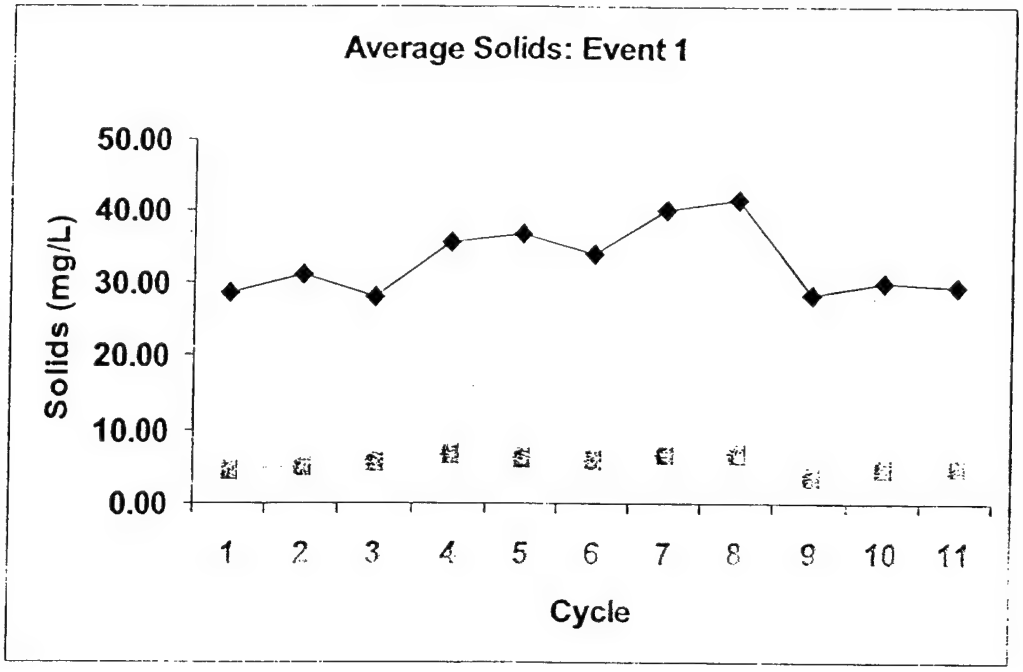


Figure 6: Suspended Solids, Event 1



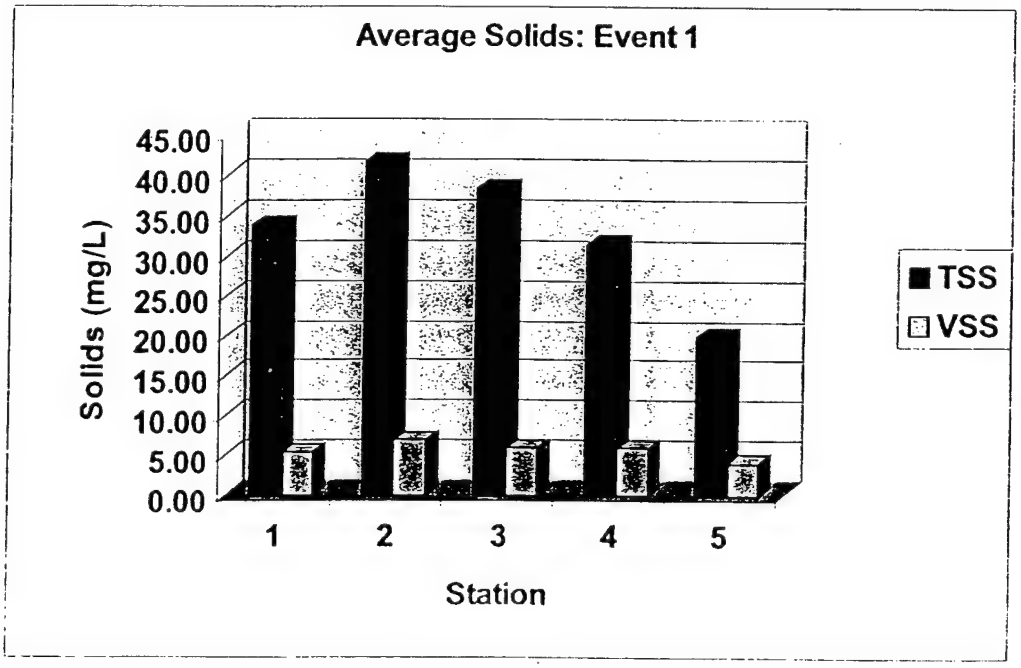
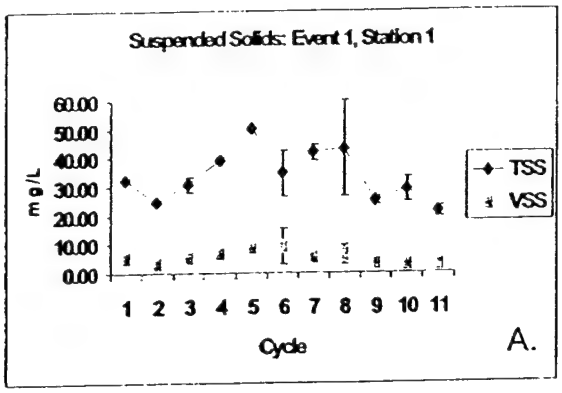
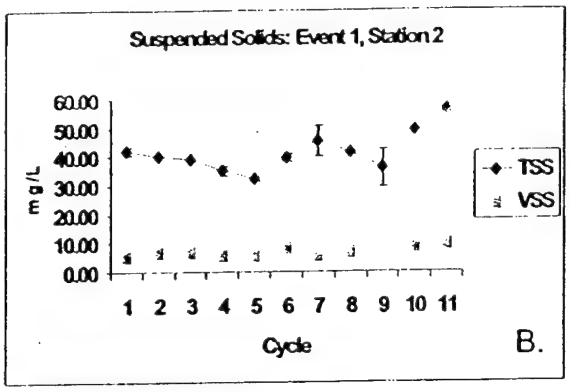
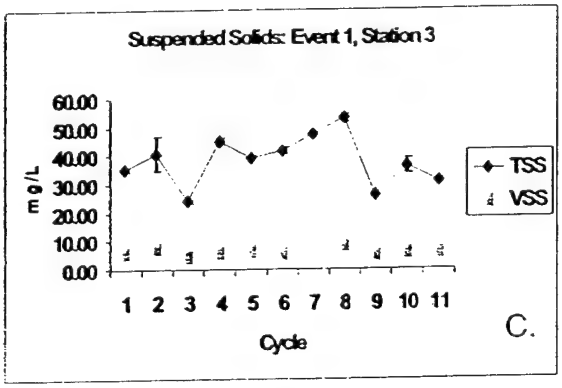
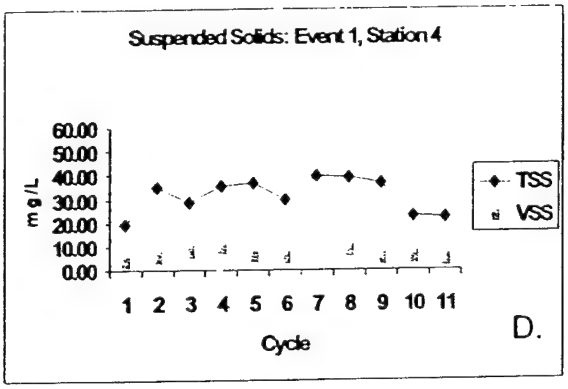


Figure 7: Suspended Solids, Event 1, Station Summary









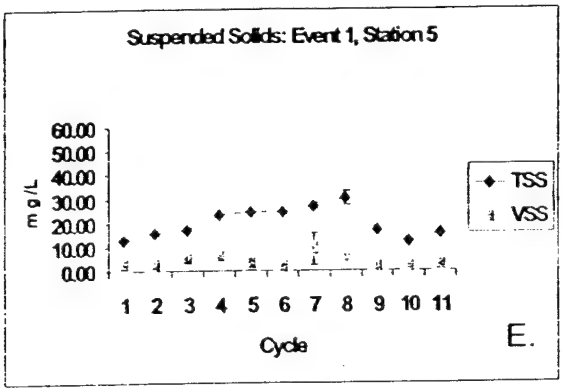
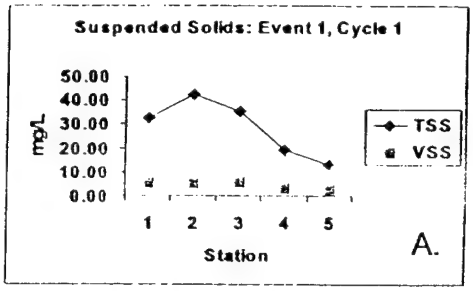
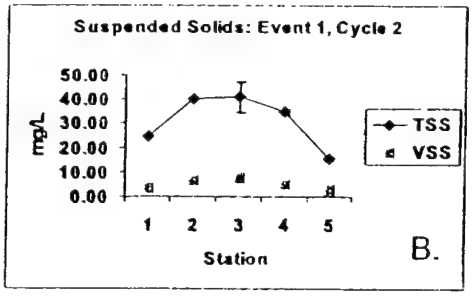
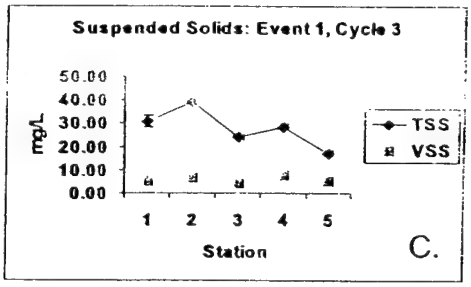
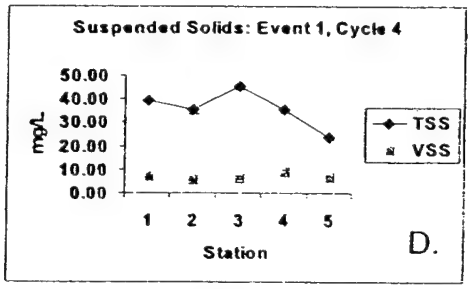


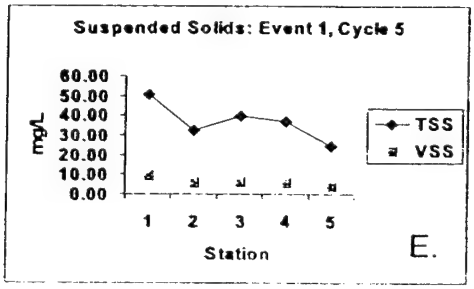
Figure 8: Suspended Solids, Event 1, Cycle Summary

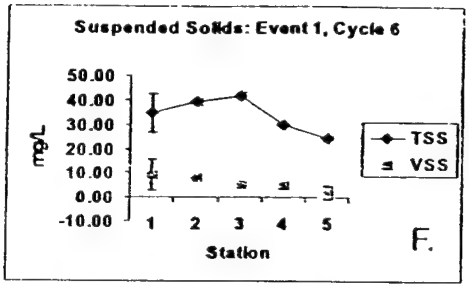


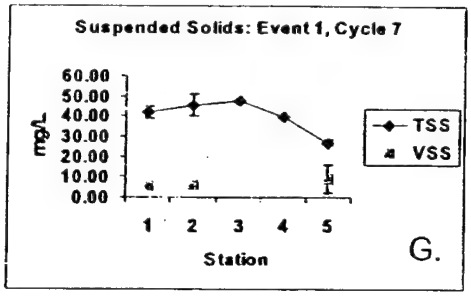


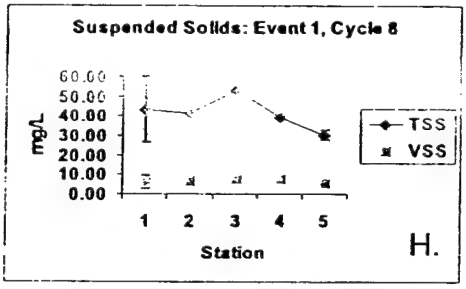


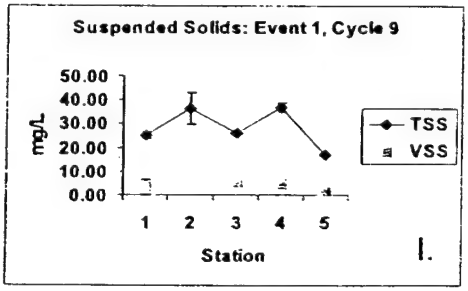


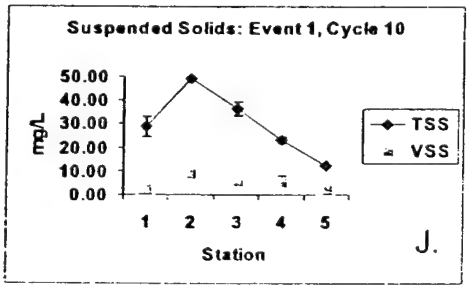












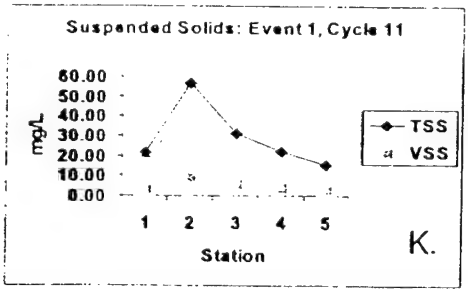
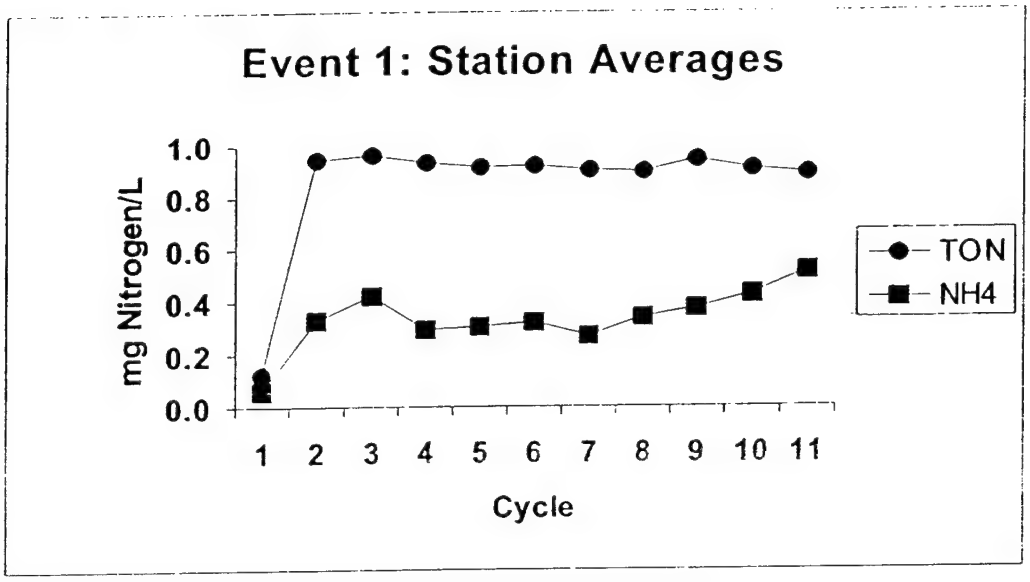


Figure 9: Nitrogen, Event 1



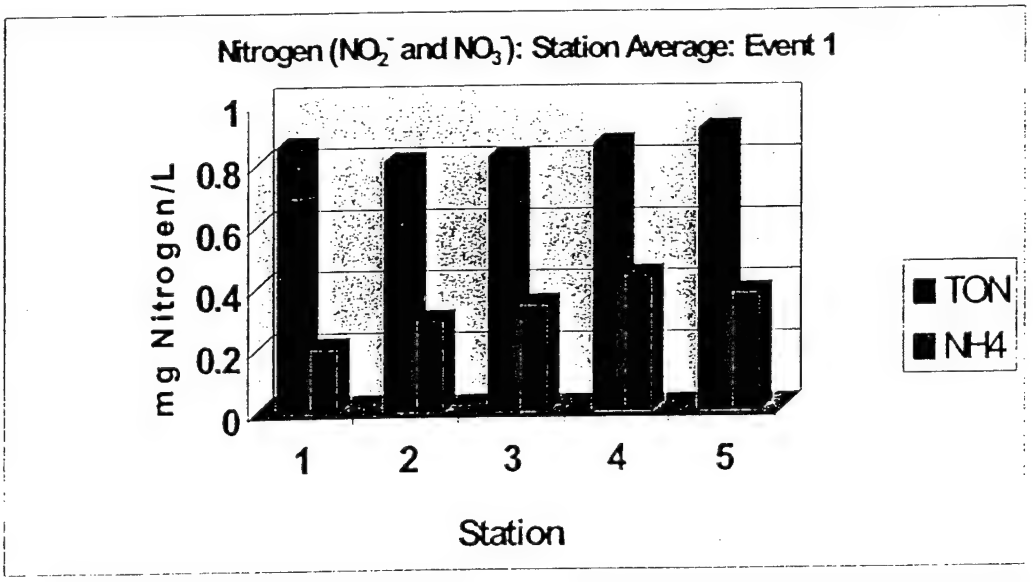
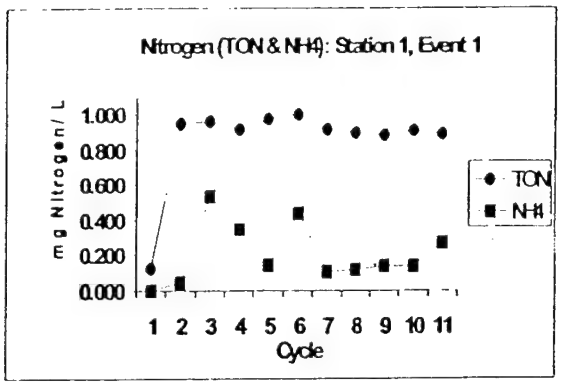
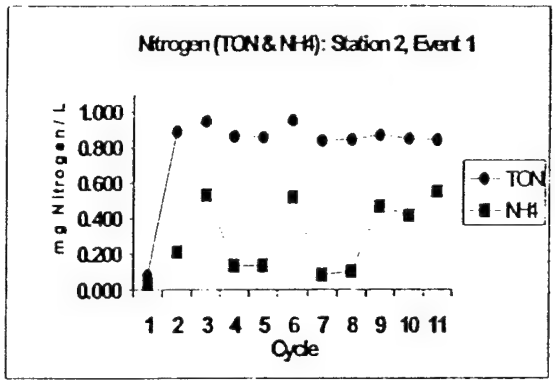
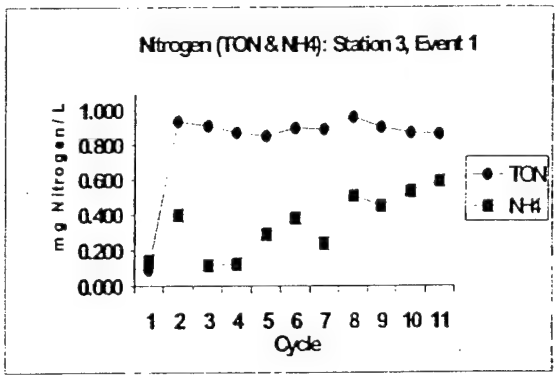
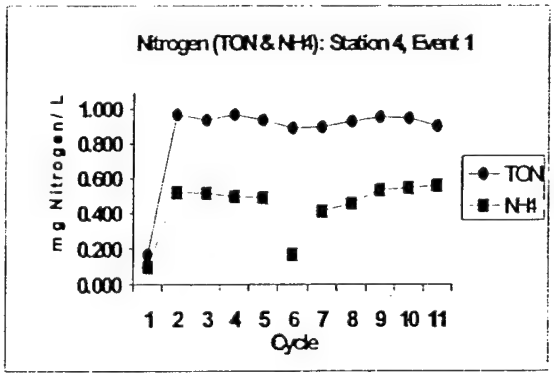


Figure 10: Nitrogen, Event 1 Station Summary









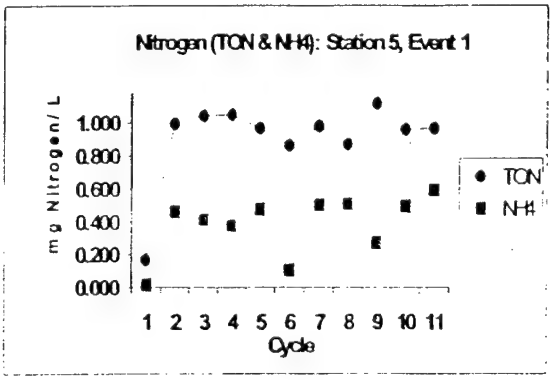
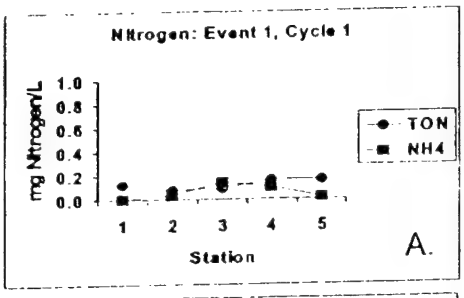
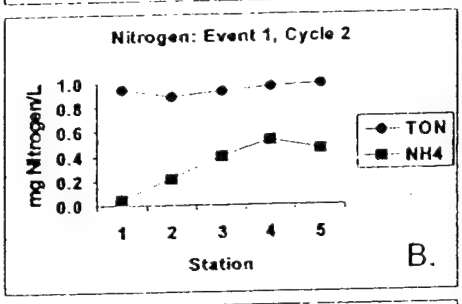
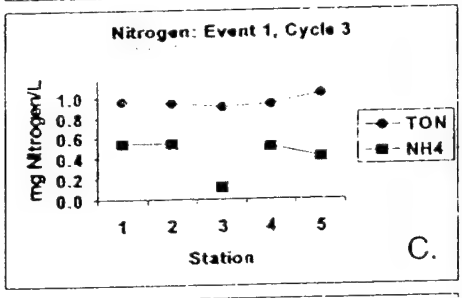
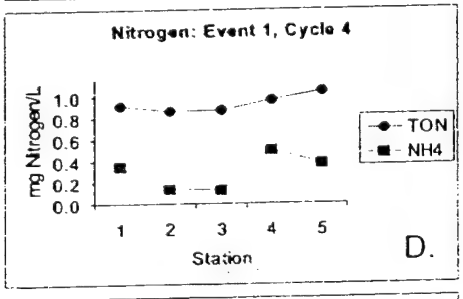


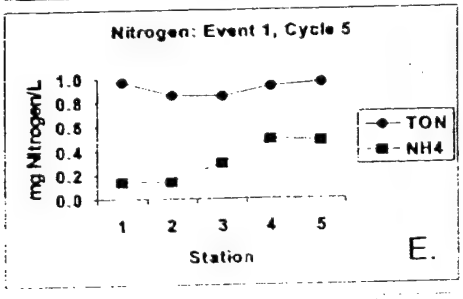
Figure 11: Nitrogen, Event 1 Cycle Summary

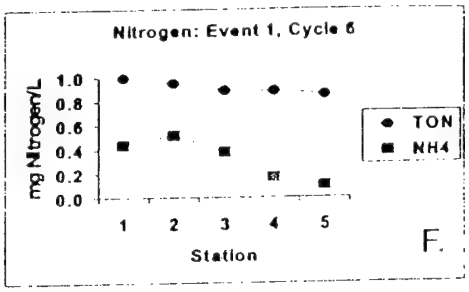


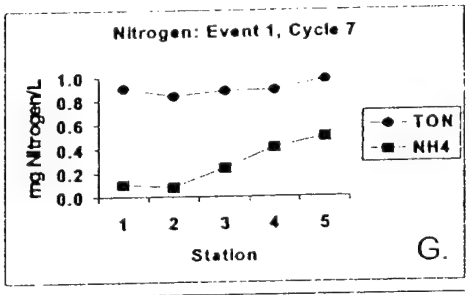


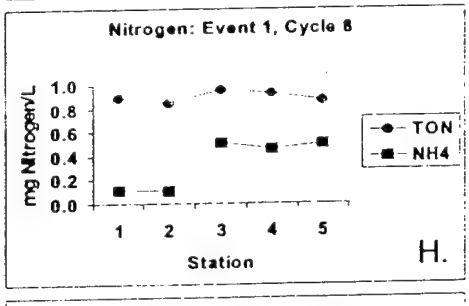


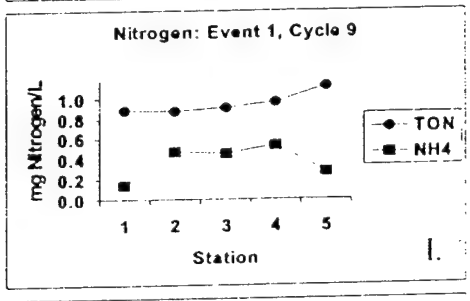


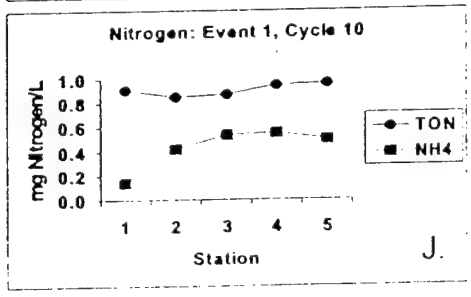












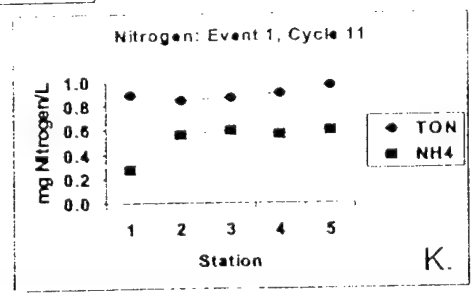
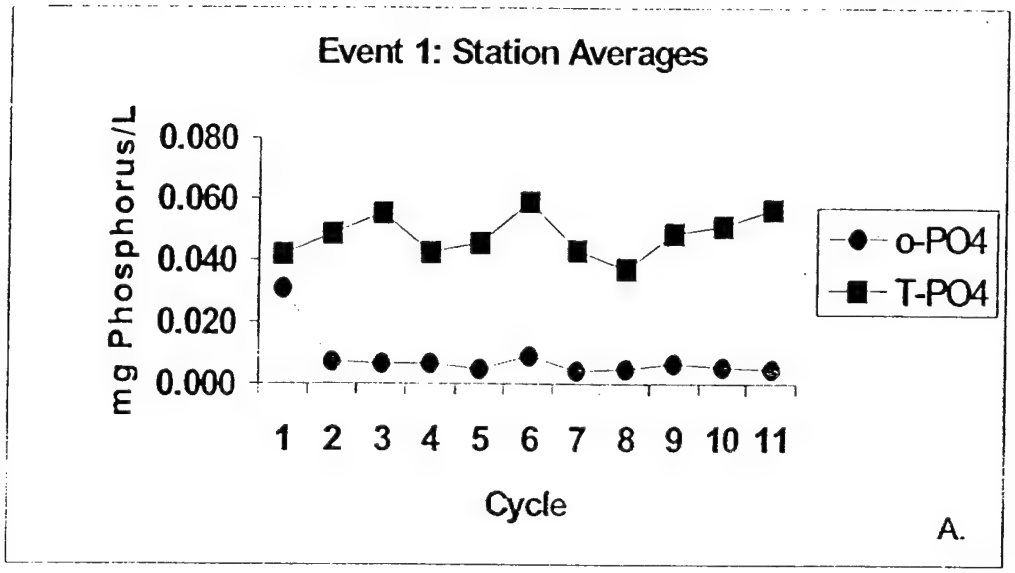


Figure 12: Phosphorus, Event 1



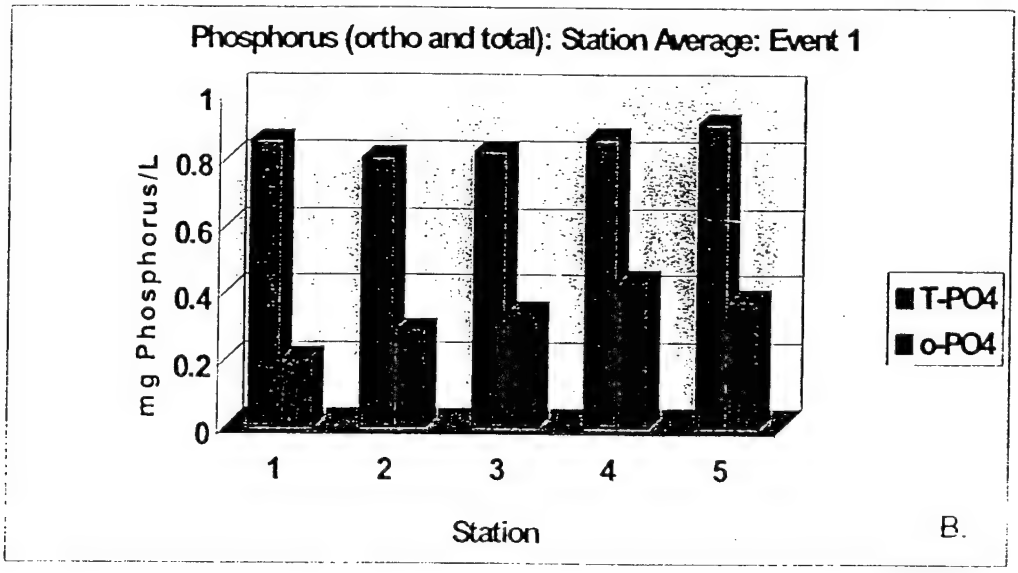
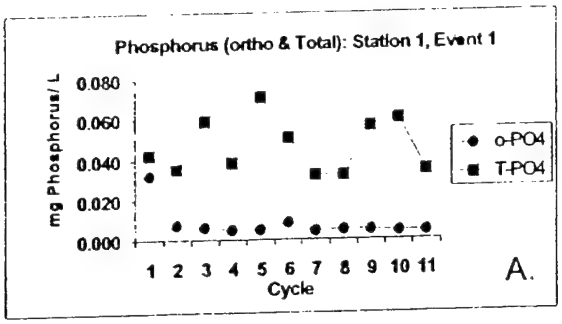
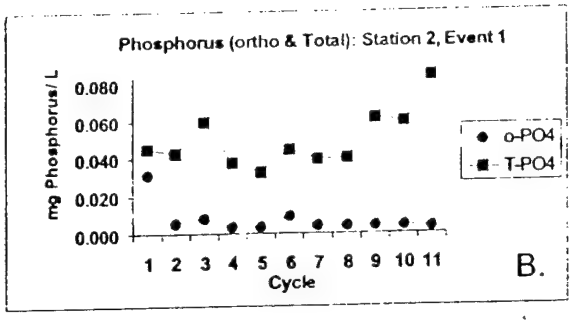
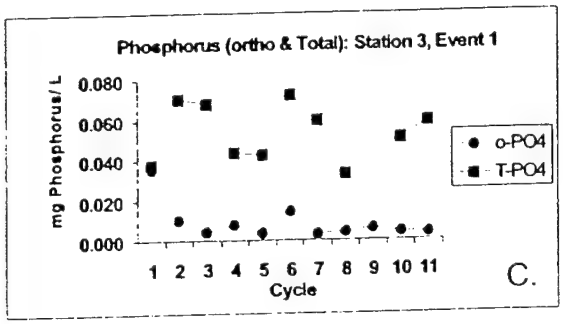
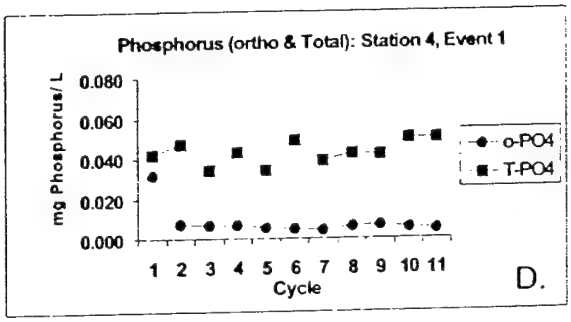


Figure 13: Phosphorus, Event 1 Station Summary









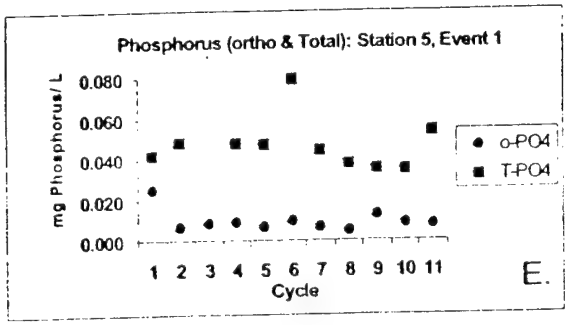
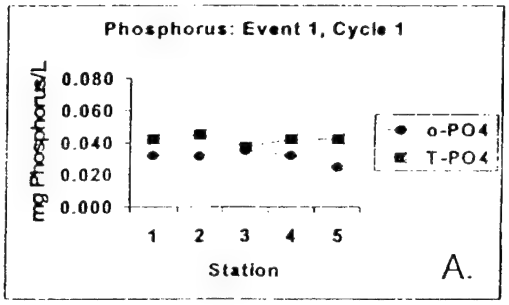
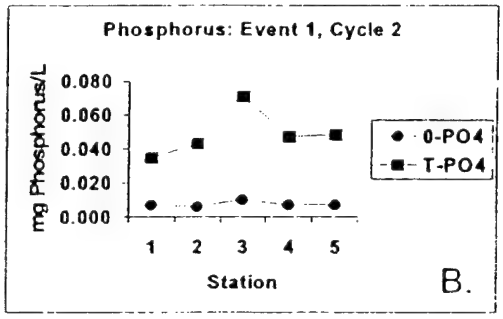
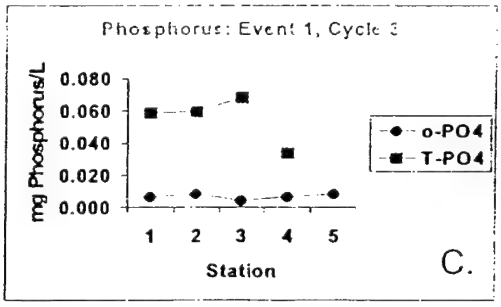
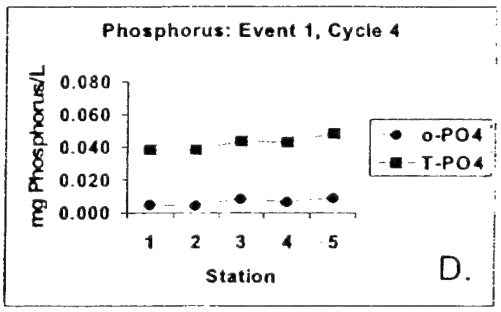


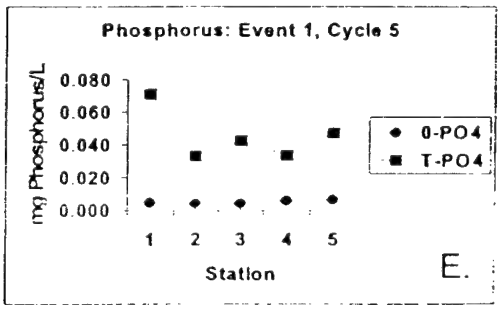
Figure 14: Phosphorus, Event 1 Cycle Summary

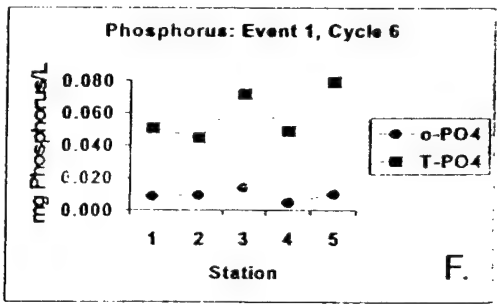


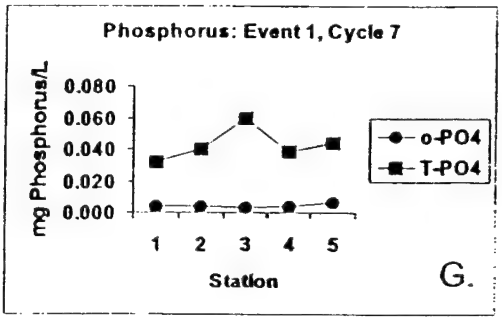


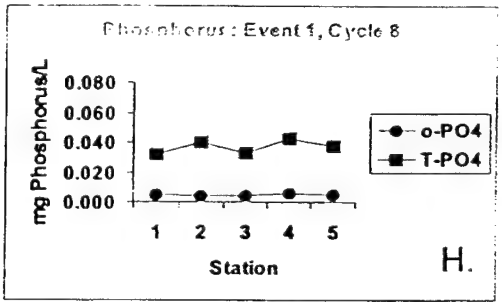


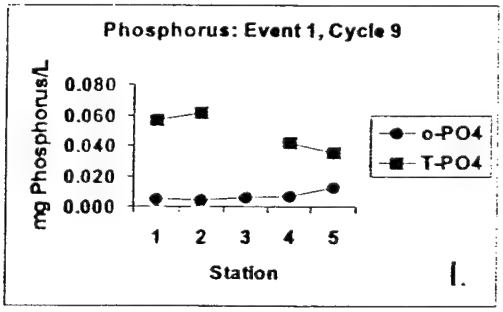


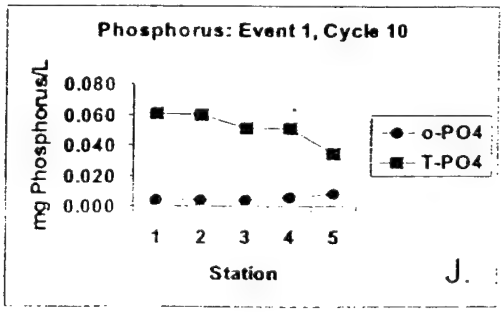












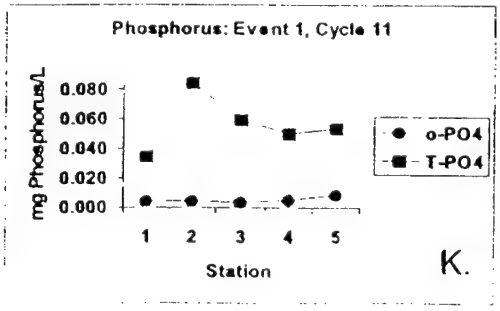
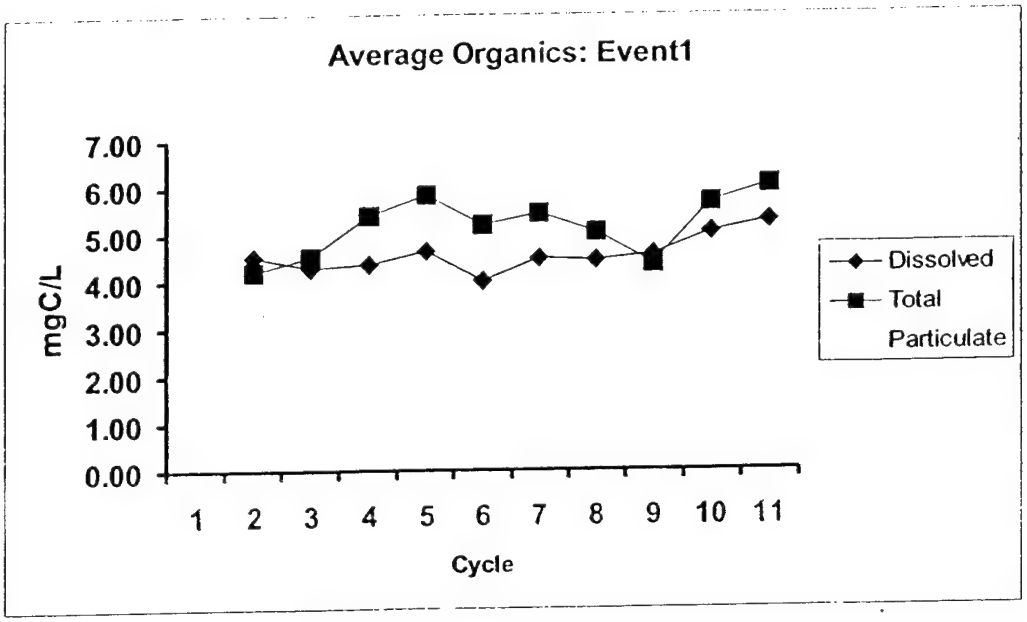


Figure 15: Event 1 Dissolved, Particulate and Total Organic Carbon



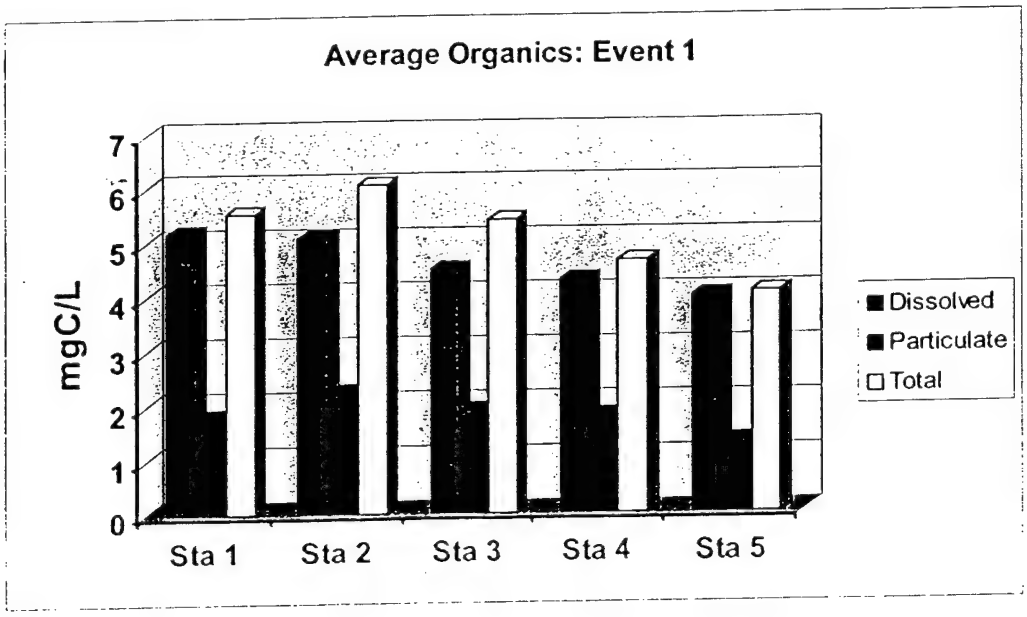
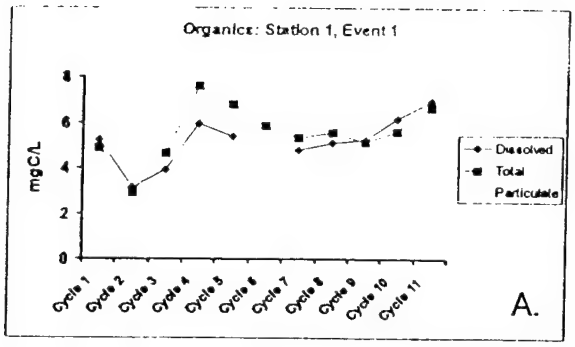
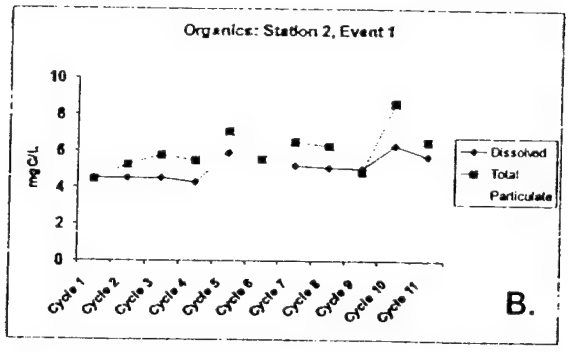
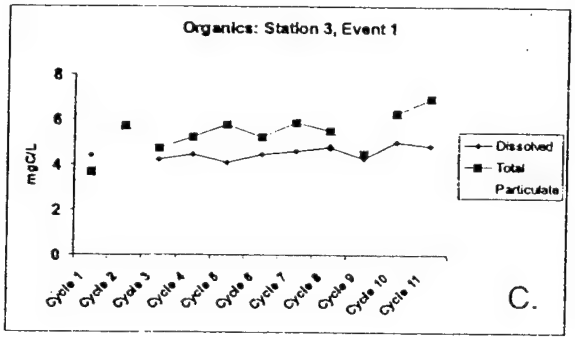
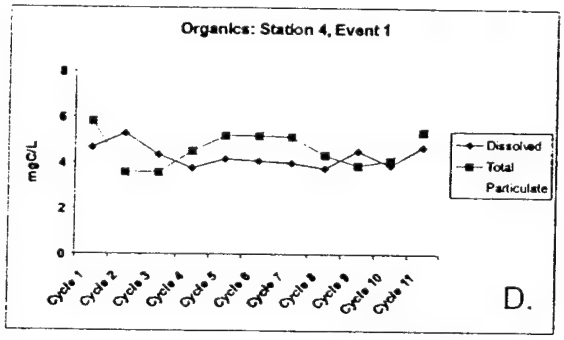


Figure 16: Organics, Event 1, Station Summary









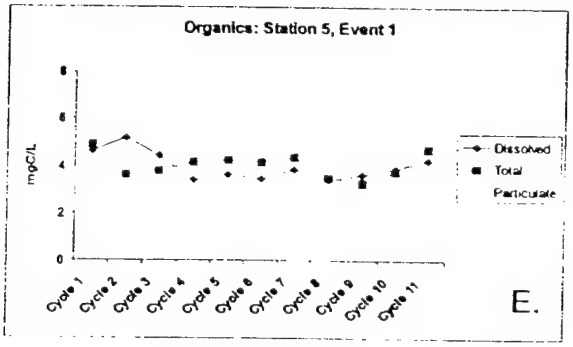
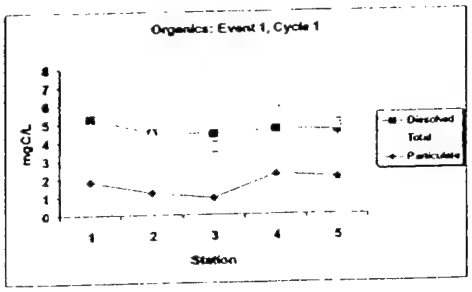
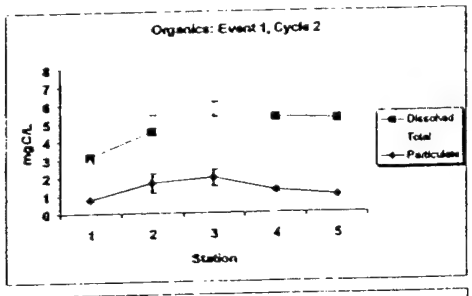
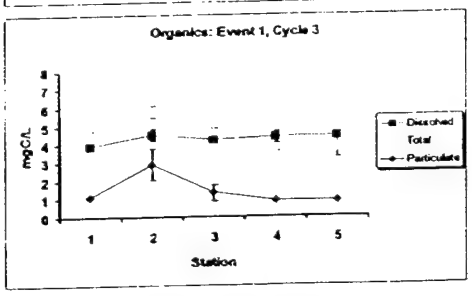
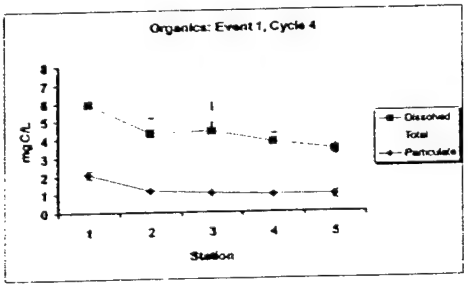


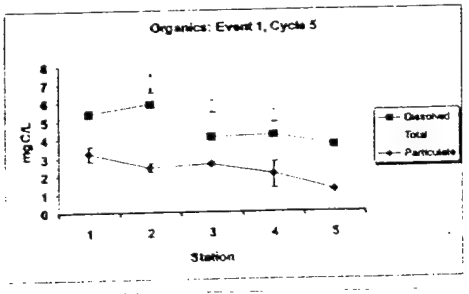
Figure 17: Organics, Event 1, Cycle Summary

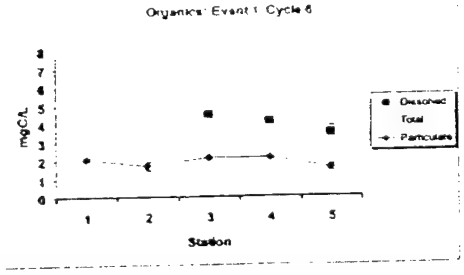


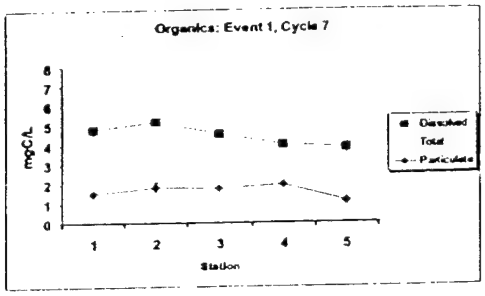


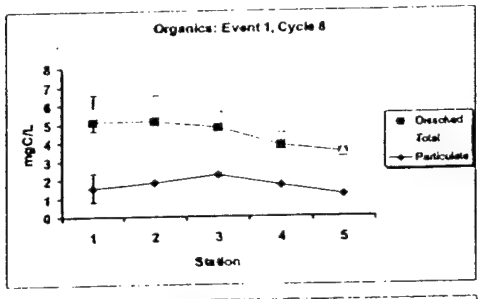


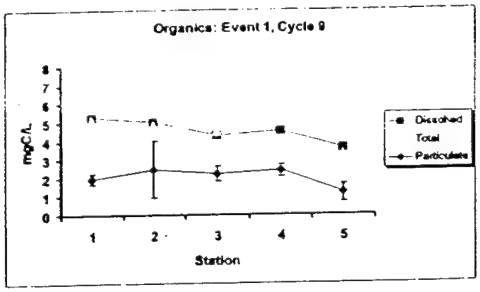


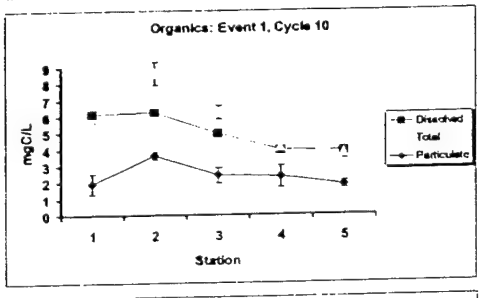












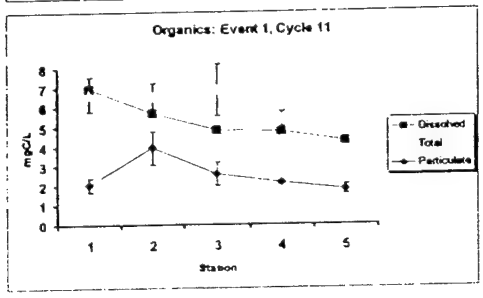


Figure 18: Event 1 Organics Method Comparison

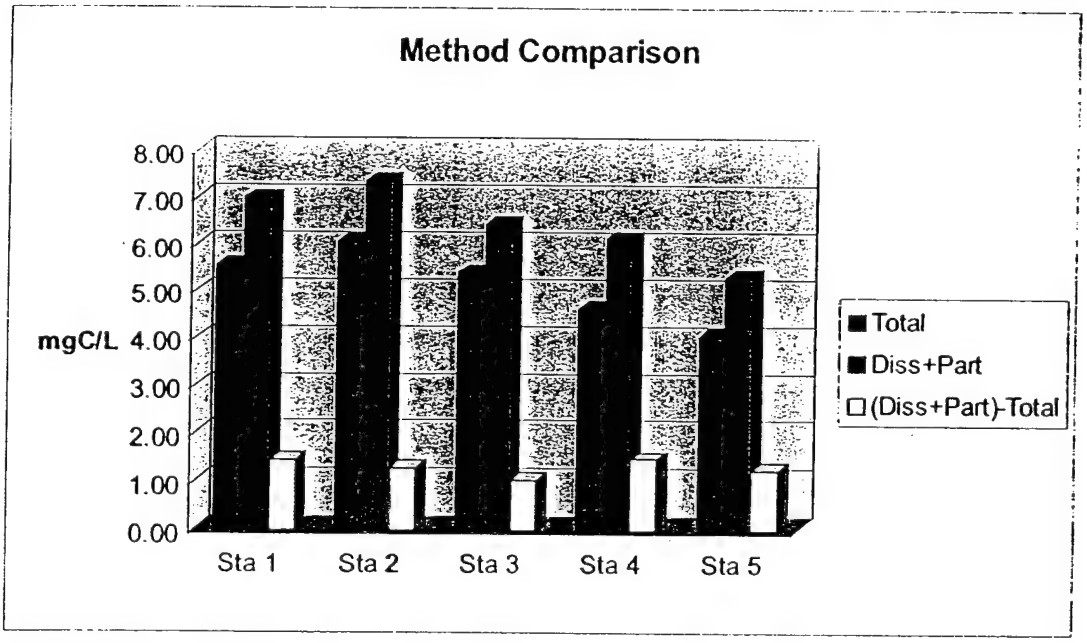
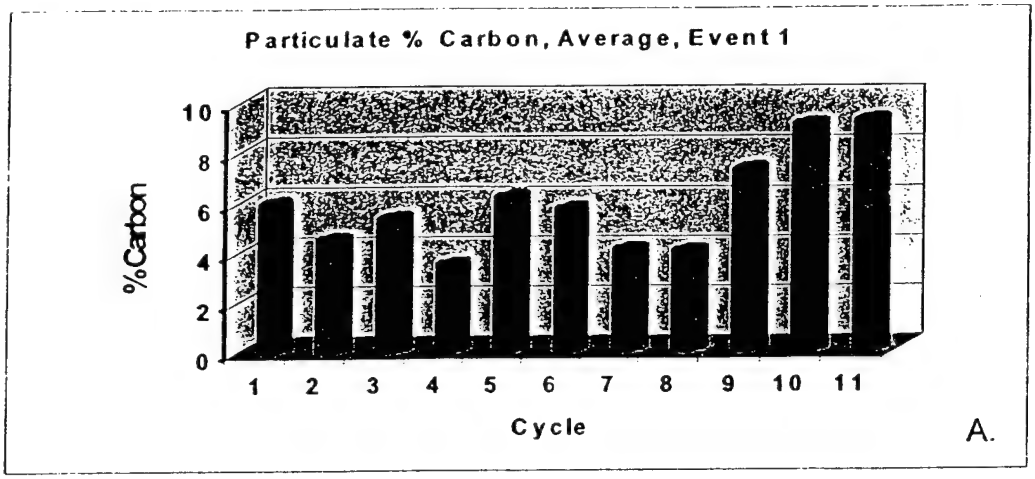
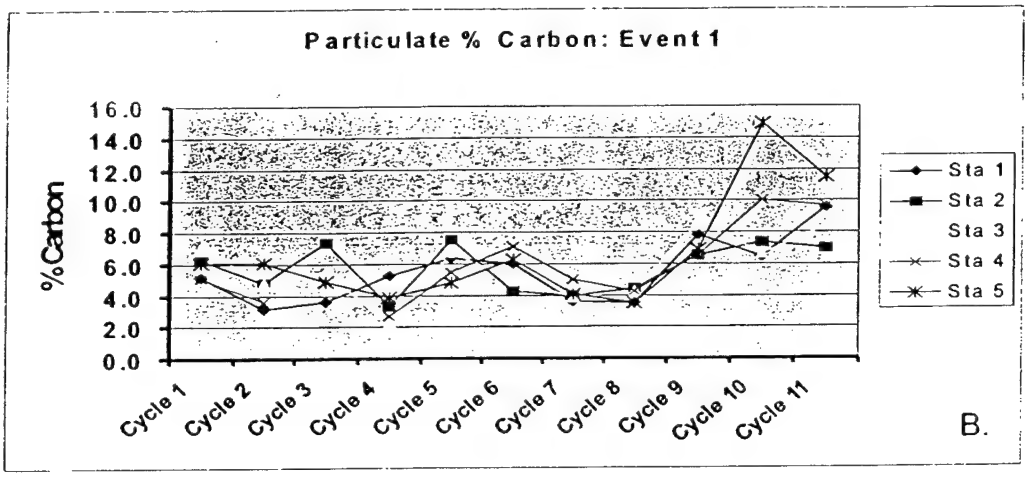


Figure 19: Percent Organic Carbon, Event 1





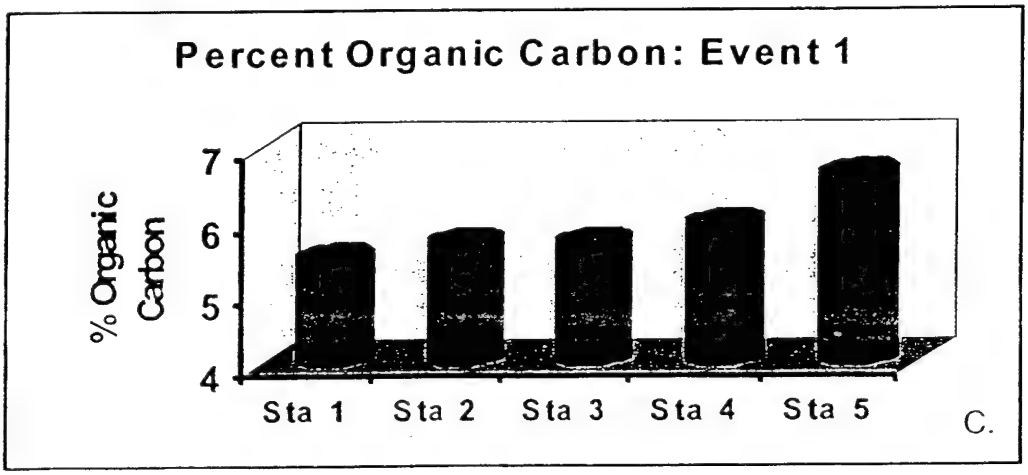
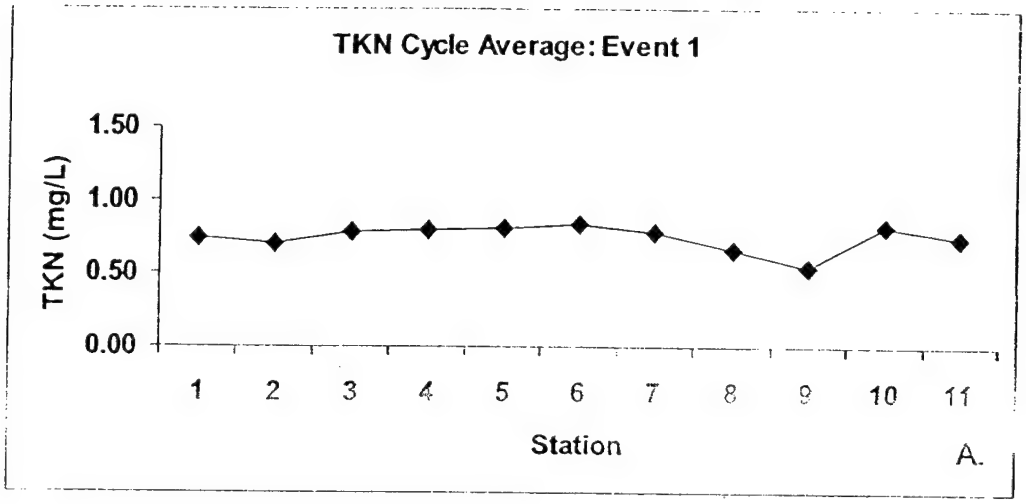


Figure 20: Total Kjeldahl Nitrogen (TKN), Event 1



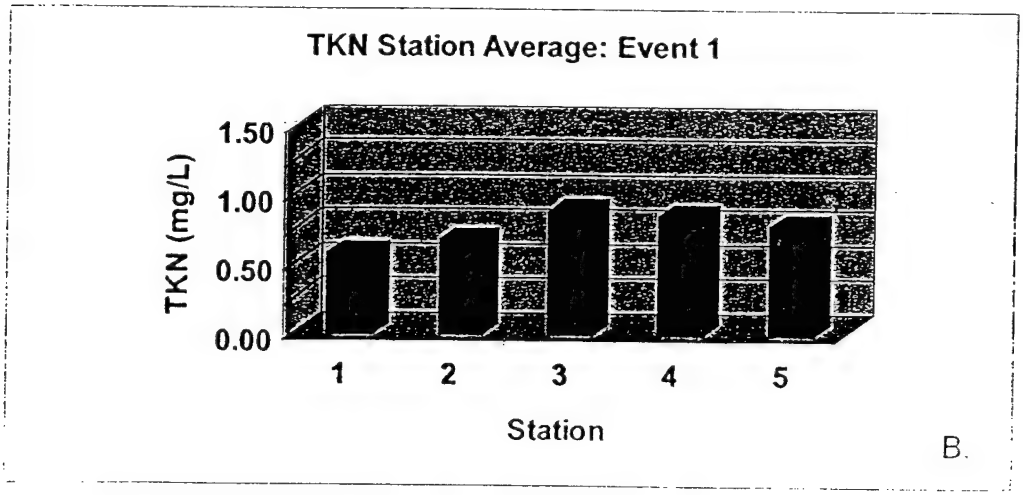
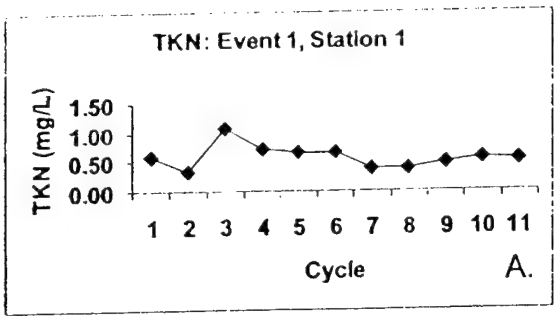
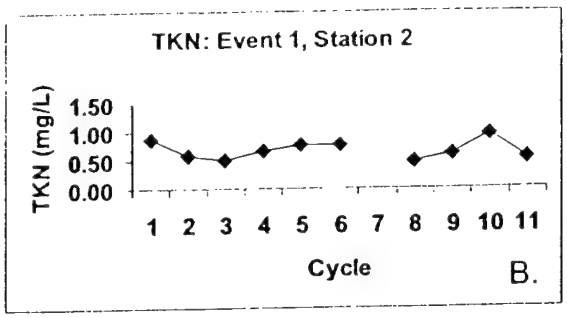
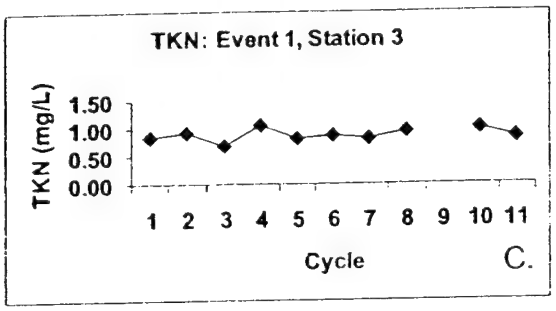
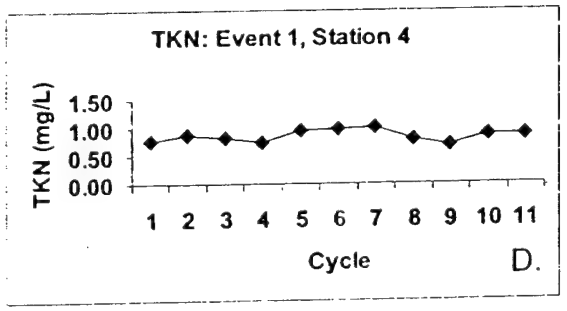


Figure 21: Total Kjeldahl Nitrogen (TKN) Event 1, Station Summary









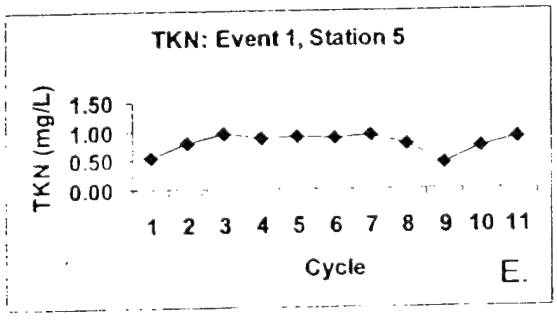
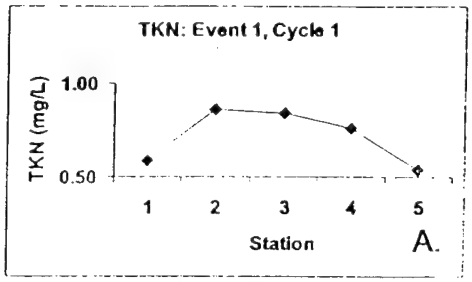
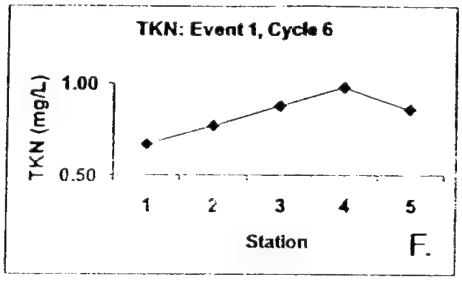
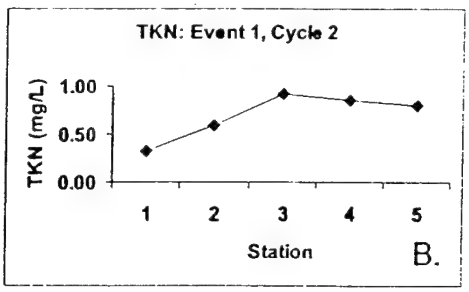
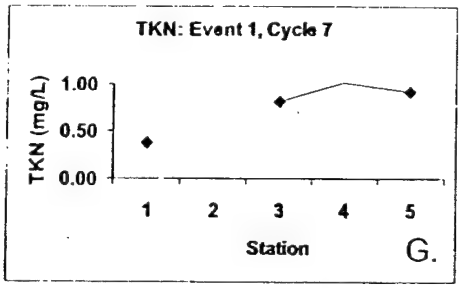


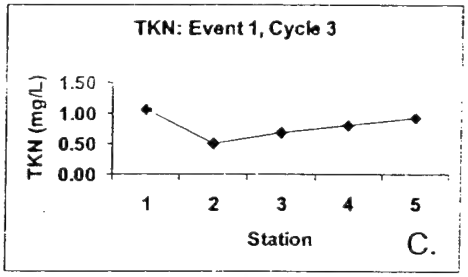
Figure 22: Total Kjeldahl Nitrogen (TKN) Event 1, Cycle Summary

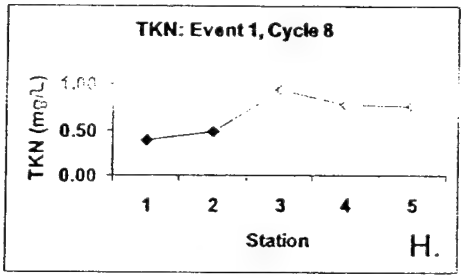


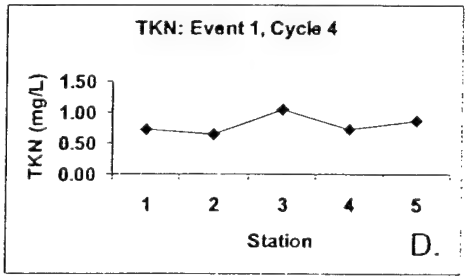


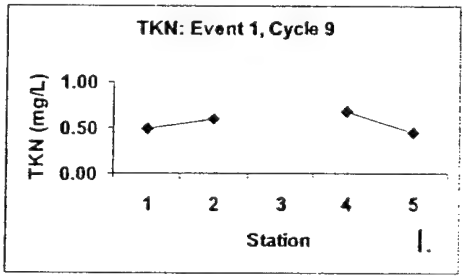


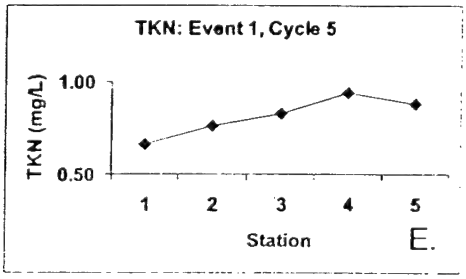


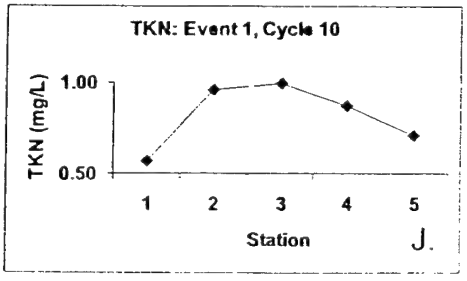












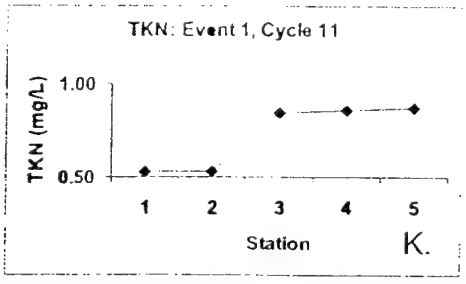
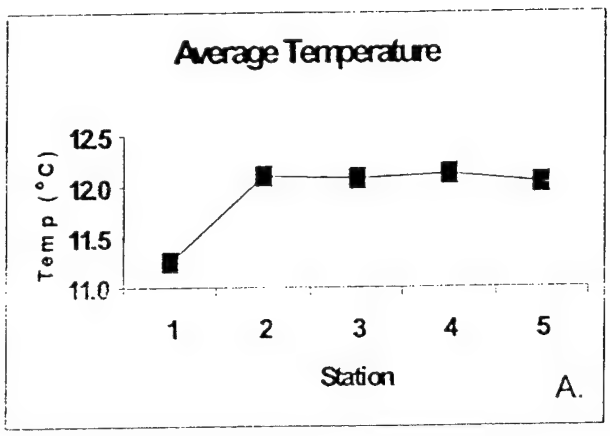
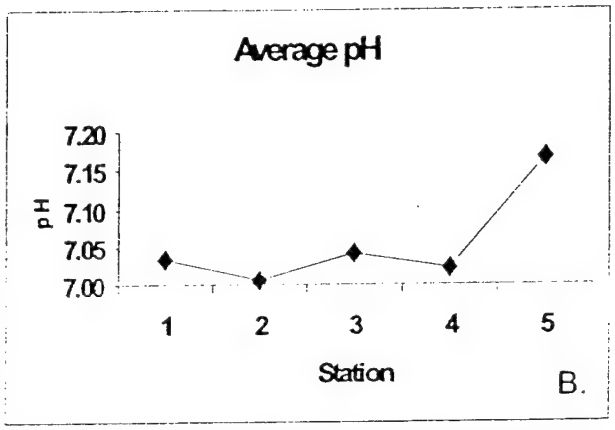
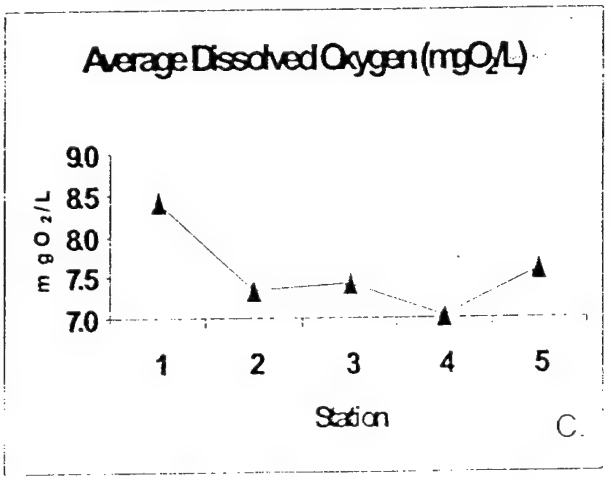


Figure 23: Water Quality, Event 1 Station Summary







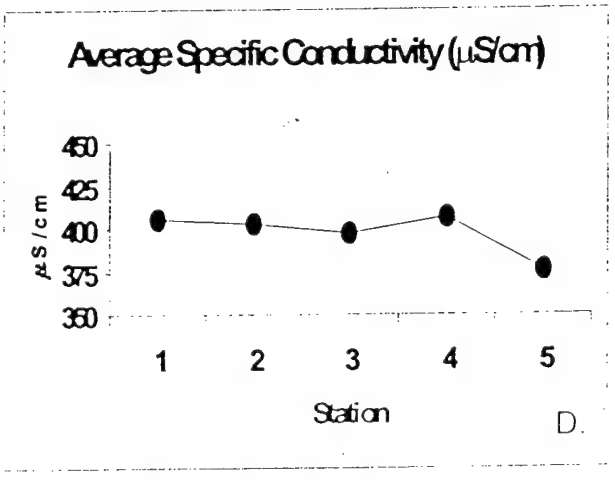
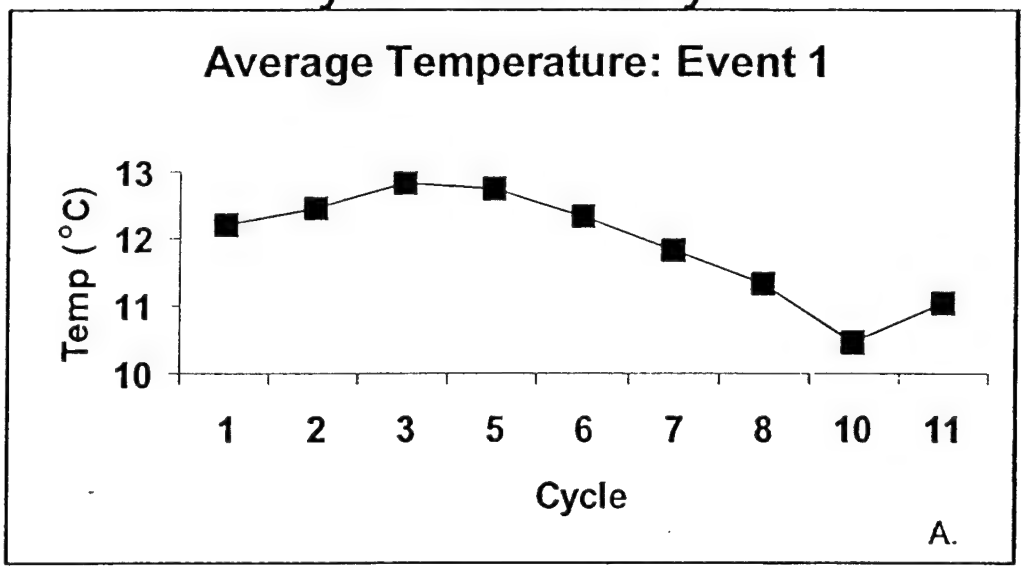
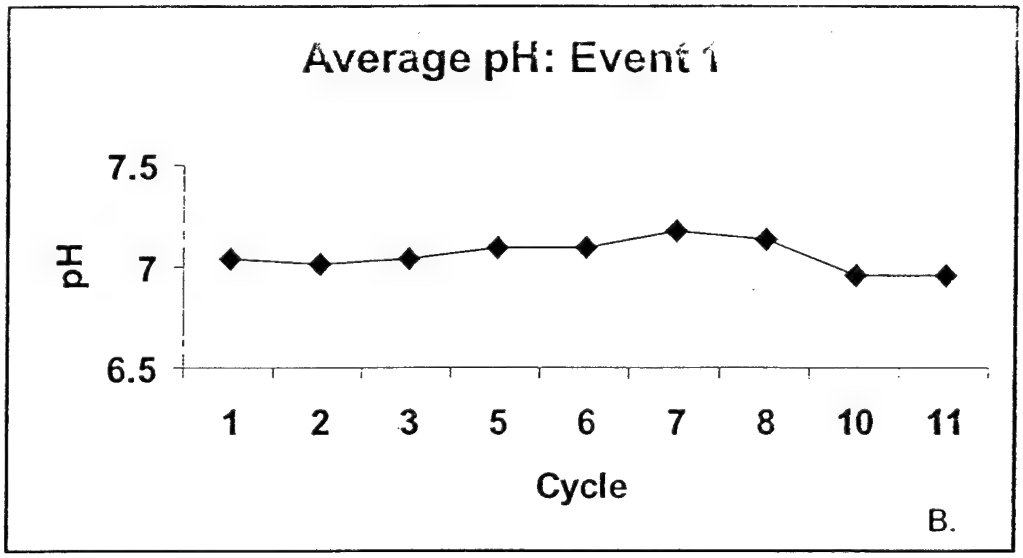
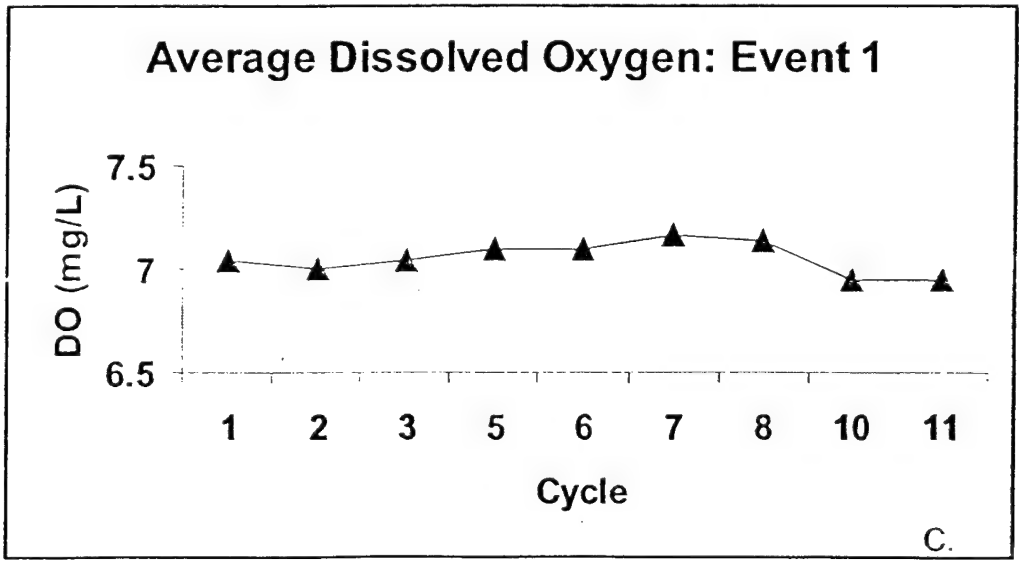


Figure 24: Water Quality, Event 1 Cycle Summary







TABLES

TABLE 1

Summary Data for Biological Oxygen Demand

Event 1: 3/16/2000 16:30 - 3/18/2000 16:30

Cycle	Station	Time Collected	Duplicate	Biological Oxygen Demand					
				DO (t0) $mgO_2\ L^{-1}$	SD	DO (t1) $mgO_2\ L^{-1}$	SD	Inc. Time days	BOD $mgO_2\ L^{-1}$
1	1	3/16/00 18:05	✓✓	10.67	0.16	8.27	0.31	4.9	2.40
1	2	3/16/00 18:25	✓✓	8.26	0.03	5.89	0.09	4.9	2.38
1	3	3/16/00 18:41	✓✓	8.04	0.15	5.84	0.04	4.9	2.20
1	4	3/16/00 17:20	✓✓	8.51	0.20	6.94	0.00	5.0	1.57
1	5	3/16/00 16:40	✓✓	10.84	0.08	8.37	0.04	4.9	2.46
2	1	3/16/00 23:50	✓✓	12.34	0.03	9.34	0.00	5.2	3.01
2	2	3/17/00 0:14	✓✓	10.27	0.12	5.73	0.25	5.2	4.55
2	3	3/17/00 0:32	✓✓	9.55	0.06	5.12	0.11	5.2	4.43
2	4	3/16/00 23:23	✓☒	7.91	0.16	5.17		5.2	2.74
2	5	3/16/00 23:08	✓✓	8.81	0.27	6.49	0.55	5.2	2.32
3	1	3/17/00 4:30	✓✓	10.72	0.07	7.01	0.03	5.0	3.70
3	2	3/17/00 4:50	✓✓	8.23	0.03	5.23	0.61	5.0	3.00
3	3	3/17/00 5:05	✓✓	8.00	0.31	5.44	0.10	5.0	2.56
3	4	3/17/00 3:54	✓✓	7.77	0.07	6.52	0.13	5.0	1.25
3	5	3/17/00 3:36	✓✓	8.87	0.13	6.87	0.23	5.0	2.01
4	1	3/17/00 8:56	✓✓	9.33	0.03	3.66	0.08	4.9	5.67
4	2	3/17/00 9:17	✓✓	9.65	0.11	5.68	0.27	4.9	3.97
4	3	3/17/00 9:35	✓✓	9.19	0.06	6.63	0.33	4.9	2.56
4	4	3/17/00 8:24	✓✓	7.88	0.13	7.05	0.83	5.0	0.83
4	5	3/17/00 8:03	✓✓	9.22	0.25	8.00	0.67	5.0	1.22
5	1	3/17/00 15:08	✓✓	10.17	0.01	5.29	0.18	4.9	4.88
5	2	3/17/00 14:50	✓☒	9.06	0.12	2.90		4.9	6.16
5	3	3/17/00 14:30	✓✓	9.18	0.04	5.29	0.09	4.9	3.89
5	4	3/17/00 14:10	✓✓	8.53	0.17	5.47	0.10	5.0	3.06
5	5	3/17/00 13:50	✓✓	8.32	0.07	6.59	0.06	5.0	1.73
6	1	3/17/00 18:50	✓✓	9.88	0.07	5.88	2.70	4.9	4.00
6	2	3/17/00 19:00	✓✓	9.08	0.19	3.29	0.35	4.9	5.79
6	3	3/17/00 19:15	✓✓	8.90	0.05	4.56	0.77	4.9	4.34
6	4	3/17/00 19:30	✓✓	9.55	1.02	5.75	0.09	4.9	3.81
6	5	3/17/00 19:40	✓✓	9.09	0.02	7.54	0.15	4.9	1.55

✓✓ : Duplicate measured for t0 and t1

✓☒ : Duplicate measured for t0 only

Note : Standard deviation calculation based on n=2

TABLE 1

Summary Data for Biological Oxygen Demand

Event 1: 3/16/2000 16:30 - 3/18/2000 16:30

Cycle	Station	Time Collected	Duplicate	Biological Oxygen Demand					
				DO (t0) $mgO_2\ L^{-1}$	SD	DO (t1) $mgO_2\ L^{-1}$	SD	Inc. Time days	BOD $mgO_2\ L^{-1}$
7	1	3/17/00 23:20	✓✓	12.24	0.20	7.08	0.43	5.2	5.16
7	2	3/17/00 23:05	✓✓	8.92	0.01	3.32	0.20	5.2	5.60
7	3	3/17/00 22:50	✓✓	8.83	0.04	2.08	0.71	5.2	6.75
7	4	3/17/00 22:35	✓✓	8.80	0.11	4.94	0.29	5.2	3.87
7	5	3/17/00 22:20	✓☒	8.38	0.17	3.34		5.2	5.04
8	1	3/18/00 3:35	✓✓	11.08	0.24	5.62	0.82	5.0	5.46
8	2	3/18/00 3:55	✓✓	8.70	0.09	3.03	0.09	5.0	5.67
8	3	3/18/00 2:51	✓✓	8.31	0.28	2.13	1.23	5.0	6.18
8	4	3/18/00 2:35	✓✓	8.32	0.09	5.05	0.88	5.0	3.27
8	5	3/18/00 2:20	✓✓	8.47	0.24	6.00	0.33	5.0	2.47
9	1	3/18/00 7:40	✓✓	10.61	0.02	6.63	0.19	4.9	3.98
9	2	3/18/00 7:20	✓✓	7.85	0.21	3.32	0.04	5.0	4.54
9	3	3/18/00 8:00	☒✓	8.72		5.53	0.33	5.0	3.19
9	4	3/18/00 7:00	✓✓	7.72	0.18	5.98	0.02	5.0	1.74
9	5	3/18/00 6:45		NA		NA			
10	1	3/18/00 11:30	✓✓	11.19	0.02	7.90	0.42	5.1	3.29
10	2	3/18/00 11:13	✓✓	8.67	0.21	3.59	0.30	5.1	5.08
10	3	3/18/00 10:57	✓✓	7.94	0.02	3.25	0.12	5.0	4.70
10	4	3/18/00 10:36	✓✓	8.13	0.27	5.95	0.05	5.0	2.18
10	5	3/18/00 10:30	✓✓	8.82	0.25	7.20	0.07	5.1	1.62
11	1	3/18/00 15:10	✓✓	11.09	0.04	3.21	0.31	4.9	7.88
11	2	3/18/00 14:55	✓✓	8.39	0.06	3.42	0.09	4.9	4.97
11	3	3/18/00 14:40	✓✓	8.12	0.29	4.35	0.16	4.9	3.76
11	4	3/18/00 14:30	✓☒	8.25	0.05	5.76		4.9	2.49
11	5	3/18/00 14:15	✓✓	9.21	0.24	6.06	0.56	4.9	3.15

✓✓ : Duplicate measured for t0 and t1
✓☒ : Duplicate measured for t0 only
☒✓ : Duplicate measured for t1 only
NA : Data not available
Note : Standard deviation calculation based on n=2

TABLE 2

Summary Data for Suspended Solids

Event 1: 3/16/2000 18:05 - 3/18/2000 14:15

Cycle	Station	Time Collected	Suspended Solids					
			Ave. TSS mg/L	TSS Sta. Dev.	Duplicate	Ave. VSS mg/L	VSS Sta. Dev.	Duplicate
1	1	3/16/00 18:05	33.20/31.78	1.02	✓	5.79/4.69	0.78	✓
1	2	3/16/00 18:25	42.26	1.43	✓	5.14	1.97	✓
1	3	3/16/00 18:41	35.34	0.75	✓	5.62	0.26	✓
1	4	3/16/00 17:20	19.26	2.65	✓	3.48	0.82	✓
1	5	3/16/00 16:40	12.98	0.82	✓	2.72	0.34	✓
2	1	3/16/00 23:50	24.61	0.39	✓	3.51	0.59	✓
2	2	3/17/00 0:14	40.00			6.67		
2	3	3/17/00 0:32	40.81	6.18	✓	7.34		
2	4	3/16/00 23:23	34.78	1.28	✓	5.38	1.26	✓
2	5	3/16/00 23:08	15.51	0.98	✓	2.61	0.78	✓
3	1	3/17/00 5:05	30.87	2.65	✓	5.20	1.41	✓
3	2	3/17/00 4:50	39.37	0.18	✓	6.74	0.02	✓
3	3	3/17/00 4:30	24.08	0.75	✓	4.27	0.04	✓
3	4	3/17/00 3:54	28.50	1.08	✓	7.54	1.38	✓
3	5	3/17/00 3:36	17.14	1.08	✓	5.00	2.19	✓
4	1	3/17/00 8:56	39.10	0.57	✓	6.93	0.49	✓
4	2	3/17/00 9:17	35.16	1.70	✓	5.60	0.44	✓
4	3	3/17/00 9:35	45.22	1.16	✓	6.04	0.62	✓
4	4	3/17/00 8:24	35.27	1.13	✓	9.18	0.35	✓
4	5	3/17/00 8:03	23.36	0.61	✓	6.59	0.19	✓
5	1	3/17/00 15:08	50.58/49.81	0.54	✓	8.94/8.92	0.02	✓
5	2	3/17/00 14:50	32.18	0.73	✓	5.74	0.48	✓
5	3	3/17/00 14:30	39.37	0.58	✓	6.46	1.19	✓
5	4	3/17/00 14:10	36.95	1.26	✓	5.71	1.76	✓
5	5	3/17/00 13:50	24.47	0.74	✓	3.77	0.02	✓
6	1	3/17/00 18:50	34.69	7.94	✓	9.17	6.39	✓
6	2	3/17/00 19:00	39.48	1.44	✓	8.21	1.83	✓
6	3	3/17/00 19:15	41.75	1.16	✓	5.50	0.96	✓
6	4	3/17/00 19:30	29.70	0.68	✓	5.24	0.73	✓
6	5	3/17/00 19:40	24.32	0.96	✓	1.94	2.74	✓

Duplicate: ✓

TABLE 2

Summary Data for Suspended Solids

Event 1: 3/16/2000 18:05 - 3/18/2000 14:15

Cycle	Station	Time Collected	Suspended Solids					
			Ave. TSS mg/L	TSS Sta. Dev.	Duplicate	Ave. VSS mg/L	VSS Sta. Dev.	Duplicate
7	1	3/17/00 23:20	41.93	2.62	✓	5.42	0.28	✓
7	2	3/17/00 23:05	45.47	5.42	✓	5.95		
7	3	3/17/00 22:20	47.31	N/A	N/A	N/A	N/A	N/A
7	4	3/17/00 22:35	39.64	N/A	N/A	N/A	N/A	N/A
7	5	3/17/00 22:50	26.88	1.52	✓	9.14	6.84	✓
8	1	3/18/00 3:35	43.15	16.76	✓	6.12	3.36	✓
8	2	3/18/00 3:55	41.43	0.85	✓	6.67	1.11	✓
8	3	3/18/00 2:35	54.23/52.36	1.32	✓	7.69/8.36	0.47	✓
8	4	3/18/00 2:20	39.22	0.80	✓	8.10	N/A	N/A
8	5	3/18/00 2:51	30.26	2.67	✓	5.65	2.11	✓
9	1	3/18/00 7:40	25.00	1.41	✓	3.25	0.35	✓
9	2	3/18/00 7:20	36.15	6.58	✓	N/A	N/A	
9	3	3/18/00 8:00	26.00	0.00	✓	5.00	0.00	✓
9	4	3/18/00 7:00	36.91	1.80	✓	4.91	1.29	✓
9	5	3/18/00 6:45	17.14	0.39	✓	1.85	N/A	
10	1	3/18/00 11:30	29.00	4.24	✓	2.75	1.77	✓
10	2	3/18/00 11:13	49.25	0.35	✓	8.75	1.06	✓
10	3	3/18/00 10:57	36.50	2.83	✓	5.75	1.06	✓
10	4	3/18/00 10:36	23.00	1.41	✓	5.00	2.83	✓
10	5	3/18/00 10:30	12.00/12.50	0.35	✓	4.50/2.50	0.71	✓
11	1	3/18/00 15:10	21.25	1.77	✓	3.00	1.41	✓
11	2	3/18/00 14:55	56.50	1.41	✓	9.75	1.06	✓
11	3	3/18/00 14:40	31.00	0.71	✓	5.75	1.06	✓
11	4	3/18/00 14:30	22.00	0.00	✓	4.00	0.00	✓
11	5	3/18/00 14:15	15.50	0.00	✓	3.00	0.71	✓

Duplicate: ✓

TABLE 3

Summary Data for Nutrients

Event 1: 3/16/2000 18:05 - 3/18/2000 14:15

Cycle	Station	Time Collected	Nutrients			
			NH_4^+ mg/L	TON mg/L	o-PO_4^- mg/L	T-PO_4 mg/L
1	1	3/16/00 18:05	0.000	0.127	0.032	0.042
1	2	3/16/00 18:25	0.032	0.083	0.032	0.045
1	3	3/16/00 18:41	0.141/0.049	0.089/0.180	0.035/.037	0.037/0.137
1	4	3/16/00 17:20	0.097	0.165	0.032	0.042
1	5	3/16/00 16:40	0.012	0.166	0.025	0.042
2	1	3/16/00 23:50	0.043	0.952	0.007	0.035
2	2	3/17/00 0:14	0.211	0.893	0.006	0.043
2	3	3/17/00 0:32	0.400	0.937	0.010	0.071
2	4	3/16/00 23:23	0.527	0.970	0.007	0.047
2	5	3/16/00 23:08	0.458	0.995	0.007	0.048
3	1	3/17/00 5:05	0.540	0.964	0.006	0.059
3	2	3/17/00 4:50	0.540	0.949	0.008	0.060
3	3	3/17/00 4:30	0.114/0.116	0.913/0.901	0.004/0.004	0.068/0.048
3	4	3/17/00 3:54	0.517	0.939	0.006	0.034
3	5	3/17/00 3:36	0.407	1.044	0.008	NA
4	1	3/17/00 8:56	0.347	0.919	0.005	0.038
4	2	3/17/00 9:17	0.134	0.866	0.004	0.038
4	3	3/17/00 9:35	0.123	0.876	0.008	0.044
4	4	3/17/00 8:24	0.498	0.969	0.006	0.043
4	5	3/17/00 8:03	0.373	1.053	0.009	0.048
5	1	3/17/00 15:08	0.142	0.973	0.005	0.071
5	2	3/17/00 14:50	0.138	0.859	0.004	0.033
5	3	3/17/00 14:30	0.294/0.293	0.854/0.888	0.004/0.007	0.042/0.171
5	4	3/17/00 14:10	0.493	0.936	0.006	0.034
5	5	3/17/00 13:50	0.476	0.967	0.007	0.047
6	1	3/17/00 18:50	0.441	1.001	0.009	0.051
6	2	3/17/00 19:00	0.523	0.956	0.009	0.044
6	3	3/17/00 19:15	0.385	0.898	0.014	0.072
6	4	3/17/00 19:30	0.171	0.890	0.005	0.049
6	5	3/17/00 19:40	0.104	0.863	0.010	0.079

NA: Data not available

TABLE 3

Summary Data for Nutrients

Event 1: 3/16/2000 18:05 - 3/18/2000 14:15

Cycle	Station	Time Collected	Nutrients			
			NH_4^+ mg/L	TON mg/L	o-PO_4^- mg/L	T-PO_4 mg/L
7	1	3/17/00 23:20	0.102	0.914	0.004	0.032
7	2	3/17/00 23:05	0.083	0.843	0.004	0.040
7	3	3/17/00 22:20	0.243	0.893/0.888	0.003/0.005	0.059/0.051
7	4	3/17/00 22:35	0.415	0.899	0.004	0.039
7	5	3/17/00 22:50	0.501	0.982	0.007	0.044
8	1	3/18/00 3:35	0.116	0.896	0.005	0.032
8	2	3/18/00 3:55	0.107	0.850	0.004	0.040
8	3	3/18/00 2:35	0.513	0.965	0.004	0.033
8	4	3/18/00 2:20	0.460	0.929	0.006	0.042
8	5	3/18/00 2:51	0.506	0.871	0.005	0.038
9	1	3/18/00 7:40	0.138	0.886	0.005	0.057
9	2	3/18/00 7:20	0.475	0.875	0.004	0.062
9	3	3/18/00 8:00	0.454/0.433	0.907/0.880	0.006/0.006	0.045
9	4	3/18/00 7:00	0.537	0.960	0.007	0.042
9	5	3/18/00 6:45	0.269	1.120	0.012	0.035
10	1	3/18/00 11:30	0.137	0.909	0.004	0.060
10	2	3/18/00 11:13	0.419	0.855	0.004	0.060
10	3	3/18/00 10:57	0.538	0.877	0.004	0.051
10	4	3/18/00 10:36	0.550	0.951	0.006	0.050
10	5	3/18/00 10:30	0.496	0.960	0.008	0.034
11	1	3/18/00 15:10	0.268	0.891	0.004	0.034
11	2	3/18/00 14:55	0.558	0.846	0.004	0.084
11	3	3/18/00 14:40	0.596/0.567	0.866/0.874	0.004/0.004	0.059/0.034
11	4	3/18/00 14:30	0.563	0.903	0.005	0.050
11	5	3/18/00 14:15	0.593	0.969	0.008	0.054

NA: Data not available

TABLE 4

Summary Data for Dissolved Organic Carbon

Event 1: 3/16/2000 16:30 - 3/18/2000 16:30

Cycle	Station	Time Collected	Duplicate	Dissolved Organic Carbon mgC/L	SD
1	1	3/16/00 18:05	✓	4.14/4.41	0.19
1	2	3/16/00 18:25	✓	4.13	0.02
1	3	3/16/00 18:25	✓	3.89	0.15
1	4	3/16/00 17:20	✓	5.01	0.08
1	5	3/16/00 16:30	✓	4.79	0.38
2	1	3/16/00 23:50	✓	3.12	0.10
2	2	3/17/00 0:14		4.51	
2	3	3/17/00 0:23		NA	
2	4	3/16/00 23:23		5.30	
2	5	3/16/00 23:08		5.17	
3	1	3/17/00 5:05	✓	3.91	0.02
3	2	3/17/00 4:50	✓	4.52	0.31
3	3	3/17/00 4:30		4.22	
3	4	3/17/00 3:54	✓	4.37	0.33
3	5	3/17/00 3:36		4.42	
4	1	3/17/00 8:56	✓	6.01/5.84	0.12
4	2	3/17/00 9:17	✓	4.30	0.02
4	3	3/17/00 9:35	✓	4.43	0.10
4	4	3/17/00 8:24	✓	3.79	0.08
4	5	3/17/00 8:03	✓	3.42	0.28
5	1	3/17/00 15:08	✓	5.38	0.03
5	2	3/17/00 14:50	✓	5.89	0.06
5	3	3/17/00 14:30	✓	4.10	0.22
5	4	3/17/00 14:10	✓	4.19	0.01
5	5	3/17/00 13:50	✓	3.64	0.10
6	1	3/17/00 18:50		NA	
6	2	3/17/00 19:00		NA	
6	3	3/17/00 19:15	✓	4.45	0.11
6	4	3/17/00 19:30	✓	4.09	0.05
6	5	3/17/00 19:40	✓	3.44/3.43	0.01

✓ : Duplicate measured

NA: Data not available

TABLE 4

Summary Data for Dissolved Organic Carbon

Event 1: 3/16/2000 16:30 - 3/18/2000 16:30

Cycle	Station	Time Collected	Duplicate	Dissolved Organic Carbon mgC/L	SD
7	1	3/17/00 23:22	✓	4.78	0.24
7	2	3/17/00 23:05	✓	5.19	0.03
7	3	3/17/00 22:50	✓	4.58	0.11
7	4	3/17/00 22:35	✓	4.02	0.12
7	5	3/17/00 22:20	✓	3.85	0.30
8	1	3/18/00 3:55	✓	5.09	0.06
8	2	3/18/00 3:50	✓	5.11	0.06
8	3	3/18/00 2:45	✓	4.78	0.08
8	4	3/18/00 2:30	✓	3.80	0.14
8	5	3/18/00 2:08		3.42	
9	1	3/18/00 7:40	✓	5.13/5.37	0.17
9	2	3/18/00 7:20	✓	5.02	0.20
9	3	3/18/00 8:00	✓	4.30	0.15
9	4	3/18/00 7:00	✓	4.54	0.16
9	5	3/18/00 6:45	✓	3.63	0.02
10	1	3/18/00 11:30		6.16	
10	2	3/18/00 11:13	✓	6.27	0.14
10	3	3/18/00 10:57	✓	4.99	0.01
10	4	3/18/00 10:36	✓	3.92	0.00
10	5	3/18/00 10:30	✓	3.90	0.16
11	1	3/18/00 15:10		6.96	
11	2	3/18/00 14:50	✓	5.59/5.82	0.16
11	3	3/18/00 14:40		4.83	
11	4	3/18/00 14:30		4.71	
11	5	3/18/00 2:15	✓	4.24	0.16

✓ : Duplicate measured

NA: Data not available

TABLE 5

Summary Data for Total Organic Carbon

Event 1: 3/16/2000 16:30 - 3/18/2000 16:30

Cycle	Station	Time Collected	Duplicate	Total Organic Carbon mgC/L	SD
1	1	3/16/00 18:05	✓	4.90	0.12
1	2	3/16/00 18:25	✓	4.48	0.15
1	3	3/16/00 18:25	✓	3.69	0.28
1	4	3/16/00 17:20	✓	5.77/5.84	0.05
1	5	3/16/00 16:30	✓	4.89	0.27
2	1	3/16/00 23:50	✓	2.88	0.06
2	2	3/17/00 0:14	✓	5.26	0.16
2	3	3/17/00 0:23	✓	5.74	0.42
2	4	3/16/00 23:23		3.58	
2	5	3/16/00 23:08		3.63	
3	1	3/17/00 5:05	✓	4.66	0.07
3	2	3/17/00 4:50	✓	5.79	0.35
3	3	3/17/00 4:30	✓	4.71	0.15
3	4	3/17/00 3:54	✓	3.59	0.01
3	5	3/17/00 3:36	✓	3.81	0.56
4	1	3/17/00 8:56	✓	7.47/7.68	0.15
4	2	3/17/00 9:17	✓	5.49	0.32
4	3	3/17/00 9:35	✓	5.22	0.81
4	4	3/17/00 8:24	✓	4.55	0.27
4	5	3/17/00 8:03	✓	4.14	0.18
5	1	3/17/00 15:08	✓	6.79	0.13
5	2	3/17/00 14:50	✓	7.10	0.55
5	3	3/17/00 14:30	✓	5.79	0.34
5	4	3/17/00 14:10	✓	5.22	0.36
5	5	3/17/00 13:50	✓	4.23	0.21
6	1	3/17/00 18:50	✓	5.85	0.16
6	2	3/17/00 19:00	✓	5.54	
6	3	3/17/00 19:15	✓	5.23	0.12
6	4	3/17/00 19:30	✓	5.18	0.01
6	5	3/17/00 19:40	✓	4.13	0.30

✓ : Duplicate measured
NA: Data not available

TABLE 5

Summary Data for Total Organic Carbon

Event 1: 3/16/2000 16:30 - 3/18/2000 16:30

Cycle	Station	Time Collected	Duplicate	Dissolved Organic Carbon mgC/L	SD
7	1	3/17/00 23:22	✓	5.33	0.14
7	2	3/17/00 23:05	✓	6.52	0.16
7	3	3/17/00 22:50	✓	5.84	0.08
7	4	3/17/00 22:35	✓	5.22/5.09	0.09
7	5	3/17/00 22:20	✓	4.36	0.15
8	1	3/18/00 3:55	✓	5.58	0.98
8	2	3/18/00 3:50	✓	6.29	0.22
8	3	3/18/00 2:45	✓	5.52	0.12
8	4	3/18/00 2:30	✓	4.37	0.08
8	5	3/18/00 2:08		3.47	
9	1	3/18/00 7:40	✓	5.15	0.02
9	2	3/18/00 7:20	✓	4.86	0.08
9	3	3/18/00 8:00	✓	4.51	0.16
9	4	3/18/00 7:00	✓	3.93	0.01
9	5	3/18/00 6:45	✓	3.29	0.21
10	1	3/18/00 11:30	✓	5.63	0.01
10	2	3/18/00 11:13	✓	8.63	0.70
10	3	3/18/00 10:57	✓	6.27	0.43
10	4	3/18/00 10:36	✓	4.12	0.04
10	5	3/18/00 10:30	✓	3.51/4.01	0.35
11	1	3/18/00 15:10	✓	6.68	0.88
11	2	3/18/00 14:50	✓	6.52	0.71
11	3	3/18/00 14:40	✓	6.91	1.33
11	4	3/18/00 14:30	✓	5.39	0.39
11	5	3/18/00 2:15	✓	4.73	

✓ : Duplicate measured

TABLE 6

Summary Data for Particulate Organic Carbon

Event 1: 3/16/2000 16:30 - 3/18/2000 16:30

Cycle	Station	Time Collected	Duplicate	Particulate Organic Carbon mgC/L	SD
1	1	3/16/00 18:05	✓	1.82	0.11
1	2	3/16/00 18:25	✓	1.20	0.07
1	3	3/16/00 18:25	✓	0.90	0.06
1	4	3/16/00 17:20	✓	2.16	0.13
1	5	3/16/00 16:30	✓	1.97	0.18
2	1	3/16/00 23:50	✓	0.76	0.08
2	2	3/17/00 0:14	✓	2.04/1.28	0.54
2	3	3/17/00 0:23	✓	1.95	0.50
2	4	3/16/00 23:23	✓	1.25	0.14
2	5	3/16/00 23:08	✓	0.94	0.04
3	1	3/17/00 5:05	✓	1.10	0.12
3	2	3/17/00 4:50	✓	2.89	0.85
3	3	3/17/00 4:30	✓	1.31	0.45
3	4	3/17/00 3:54	✓	0.84	0.04
3	5	3/17/00 3:36		0.87	
4	1	3/17/00 8:56	✓	2.05	0.22
4	2	3/17/00 9:17	✓	1.16	0.09
4	3	3/17/00 9:35	✓	1.02	0.06
4	4	3/17/00 8:24	✓	0.94	0.05
4	5	3/17/00 8:03	✓	0.91	0.24
5	1	3/17/00 15:08	✓	3.20	0.42
5	2	3/17/00 14:50	✓	2.43	0.24
5	3	3/17/00 14:30	✓	2.63	0.14
5	4	3/17/00 14:10	✓	2.03	0.71
5	5	3/17/00 13:50	✓	1.17/1.18	0.01
6	1	3/17/00 18:50	✓	2.03	0.14
6	2	3/17/00 19:00	✓	1.68	0.22
6	3	3/17/00 19:15	✓	2.08	0.09
6	4	3/17/00 19:30	✓	2.10	0.09
6	5	3/17/00 19:40	✓	1.53	0.19

✓ : Duplicate measured

TABLE 6

Summary Data for Particulate Organic Carbon

Event 1: 3/16/2000 16:30 - 3/18/2000 16:30

Cycle	Station	Time Collected	Duplicate	Particulate Organic Carbon mgC/L	SD
7	1	3/17/00 23:22	✓	1.54/1.44	0.07
7	2	3/17/00 23:05	✓	1.79	0.26
7	3	3/17/00 22:50		1.78	
7	4	3/17/00 22:35		1.95	
7	5	3/17/00 22:20	✓	1.09	0.08
8	1	3/18/00 3:55	✓	1.55	0.76
8	2	3/18/00 3:50	✓	1.84	0.06
8	3	3/18/00 2:45	✓	2.23	0.12
8	4	3/18/00 2:30	✓	1.67	0.08
8	5	3/18/00 2:08		1.18	
9	1	3/18/00 7:40	✓	1.95	0.29
9	2	3/18/00 7:20	✓	2.47	1.55
9	3	3/18/00 8:00	✓	2.24	0.39
9	4	3/18/00 7:00	✓	2.41	0.33
9	5	3/18/00 6:45	✓	1.18	0.50
10	1	3/18/00 11:30	✓	1.90	0.63
10	2	3/18/00 11:13	✓	3.61	0.22
10	3	3/18/00 10:57	✓	2.42	0.47
10	4	3/18/00 10:36	✓	2.33	0.69
10	5	3/18/00 10:30	✓	1.66/2.01	0.25
11	1	3/18/00 15:10	✓	2.03	0.37
11	2	3/18/00 14:50	✓	3.92	0.85
11	3	3/18/00 14:40	✓	2.58	0.58
11	4	3/18/00 14:30	✓	2.13	0.10
11	5	3/18/00 2:15	✓	1.78	0.24

✓ : Duplicate measured

TABLE 7

Summary Data for Percent Organic Carbon

Event 1: 3/16/2000 16:30 - 3/18/2000 16:30

Cycle	Station	Time Collected	Duplicate	Percent Organic Carbon %	SD
1	1	3/16/00 18:05	✓	5.2	0.2
1	2	3/16/00 18:25	✓	6.3	0.5
1	3	3/16/00 18:25	✓	7.0	0.9
1	4	3/16/00 17:20	✓	5.1	0.1
1	5	3/16/00 16:30	✓	6.1	0.4
2	1	3/16/00 23:50	✓	3.1	0.3
2	2	3/17/00 0:14	✓	4.8	0.5
2	3	3/17/00 0:23	✓	4.8	0.5
2	4	3/16/00 23:23	✓	3.6	0.3
2	5	3/16/00 23:08	✓	6.1	0.1
3	1	3/17/00 5:05	✓	3.6	0.7
3	2	3/17/00 4:50	✓	7.4	2.2
3	3	3/17/00 4:30	✓	5.4	1.7
3	4	3/17/00 3:54		5.3	
3	5	3/17/00 3:36	✓	4.9	0.6
4	1	3/17/00 8:56	✓	5.3	0.5
4	2	3/17/00 9:17	✓	3.3	0.4
4	3	3/17/00 9:35	✓	2.3	0.1
4	4	3/17/00 8:24	✓	2.7	0.1
4	5	3/17/00 8:03	✓	3.9	1.1
5	1	3/17/00 15:08	✓	6.4	0.8
5	2	3/17/00 14:50	✓	7.6	0.9
5	3	3/17/00 14:30	✓	6.7	0.4
5	4	3/17/00 14:10	✓	5.5	1.7
5	5	3/17/00 13:50	✓	4.8	0.1
6	1	3/17/00 18:50	✓	6.0	1.0
6	2	3/17/00 19:00	✓	4.2	0.4
6	3	3/17/00 19:15	✓	5.0	0.1
6	4	3/17/00 19:30	✓	7.1	0.1
6	5	3/17/00 19:40	✓	6.3	0.5

✓ : Duplicate measured

TABLE 7

Summary Data for Percent Organic Carbon

Event 1: 3/16/2000 16:30 - 3/18/2000 16:30

Cycle	Station	Time Collected	Duplicate	Percent Organic Carbon %	Percent Organic Carbon SD
1	1	3/16/00 18:05	✓	5.2	0.2
1	2	3/16/00 18:25	✓	6.3	0.5
1	3	3/16/00 18:25	✓	7.0	0.9
1	4	3/16/00 17:20	✓	5.1	0.1
1	5	3/16/00 16:30	✓	6.1	0.4
2	1	3/16/00 23:50	✓	3.1	0.3
2	2	3/17/00 0:14	✓	4.8	0.5
2	3	3/17/00 0:23	✓	4.8	0.5
2	4	3/16/00 23:23	✓	3.6	0.3
2	5	3/16/00 23:08	✓	6.1	0.1
3	1	3/17/00 5:05	✓	3.6	0.7
3	2	3/17/00 4:50	✓	7.4	2.2
3	3	3/17/00 4:30	✓	5.4	1.7
3	4	3/17/00 3:54		5.3	
3	5	3/17/00 3:36	✓	4.9	0.6
4	1	3/17/00 8:56	✓	5.3	0.5
4	2	3/17/00 9:17	✓	3.3	0.4
4	3	3/17/00 9:35	✓	2.3	0.1
4	4	3/17/00 8:24	✓	2.7	0.1
4	5	3/17/00 8:03	✓	3.9	1.1
5	1	3/17/00 15:08	✓	6.4	0.8
5	2	3/17/00 14:50	✓	7.6	0.9
5	3	3/17/00 14:30	✓	6.7	0.4
5	4	3/17/00 14:10	✓	5.5	1.7
5	5	3/17/00 13:50	✓	4.8	0.1
6	1	3/17/00 18:50	✓	6.0	1.0
6	2	3/17/00 19:00	✓	4.2	0.4
6	3	3/17/00 19:15	✓	5.0	0.1
6	4	3/17/00 19:30	✓	7.1	0.1
6	5	3/17/00 19:40	✓	6.3	0.5

✓ : Duplicate measured

TABLE 8

Summary Data for Total Kjeldahl Nitrogen

Event 1: 3/16/2000 16:30 - 3/18/2000 16:30

Cycle	Station	Time Collected	Total Kjeldahl Nitrogen	
			TKN mg/L	Duplicate mg/L
1	1	3/16/00 18:05	0.59	
1	2	3/16/00 18:25	0.86	
1	3	3/16/00 18:41	0.82	0.86
1	4	3/16/00 17:20	0.76	
1	5	3/16/00 16:40	0.54	
2	1	3/16/00 23:50	0.32	
2	2	3/17/00 0:14	0.59	
2	3	3/17/00 0:32	0.92	
2	4	3/16/00 23:23	0.86	
2	5	3/16/00 23:08	0.8	
3	1	3/17/00 5:05	1.06	
3	2	3/17/00 4:50	0.5	
3	3	3/17/00 4:30	0.84	0.53
3	4	3/17/00 3:54	0.81	
3	5	3/17/00 3:36	0.93	
4	1	3/17/00 8:56	0.72	
4	2	3/17/00 9:17	0.65	
4	3	3/17/00 9:35	1.04	
4	4	3/17/00 8:24	0.73	
4	5	3/17/00 8:03	0.87	
5	1	3/17/00 15:08	0.66	
5	2	3/17/00 14:50	0.76	
5	3	3/17/00 14:30	0.84	0.81
5	4	3/17/00 14:10	0.94	
5	5	3/17/00 13:50	0.88	
6	1	3/17/00 18:50	0.67	
6	2	3/17/00 19:00	0.77	
6	3	3/17/00 19:15	0.88	
6	4	3/17/00 19:30	0.98	
6	5	3/17/00 19:40	0.86	

TABLE 8

Summary Data for Total Kjeldahl Nitrogen

Event 1: 3/16/2000 16:30 - 3/18/2000 16:30

Cycle	Station	Time Collected	Total Kjeldahl Nitrogen	
			TKN mg/L	Duplicate mg/L
7	1	3/17/00 23:20	0.38	
7	2	3/17/00 23:05	0.72	
7	3	3/17/00 22:50	0.81	0.80
7	4	3/17/00 22:35	1.01	
7	5	3/17/00 22:20	0.92	
8	1	3/18/00 3:35	0.39	
8	2	3/18/00 3:55	0.48	
8	3	3/18/00 2:51	0.94	
8	4	3/18/00 2:35	0.78	
8	5	3/18/00 2:20	0.76	
9	1	3/18/00 7:40	0.48	
9	2	3/18/00 7:20	1.18	
9	3	3/18/00 8:00	NA	
9	4	3/18/00 7:00	0.68	1.07
9	5	3/18/00 6:45	0.44	
10	1	3/18/00 11:30	0.57	
10	2	3/18/00 11:13	0.96	
10	3	3/18/00 10:57	0.99	
10	4	3/18/00 10:36	0.87	
10	5	3/18/00 14:15	0.71	
11	1	3/18/00 15:10	0.53	
11	2	3/18/00 14:55	0.53	
11	3	3/18/00 14:40	0.92	0.77
11	4	3/18/00 14:30	0.86	
11	5	3/18/00 14:15	0.87	

Table 9

Summary Data for Water Quality

Event 1: 3/16/2000 16:30 - 3/18/2000 16:30

Cycle	Station	Time Collected	Duplicate	Hydrolab Data			
				Temp °C	pH Units	SpCond µS/cm	DO mg/l
1	1	3/16/00 18:05		12.21	6.97	399.2	8.2
1	2	3/16/00 18:25		12.29	6.98	404.2	6.43
1	3	3/16/00 18:41		12.39	7.13	410.4	6.05
1	4	3/16/00 17:20		12.31	7.08	401.8	6.79
1	5	3/16/00 16:40		11.78	7.01	341.1	8.23
2	1	3/16/00 23:50		12.51	6.97	408.8	6.05
2	2	3/17/00 0:14		12.57	7.04	400.7	7.95
2	3	3/17/00 0:32		12.43	7.06	401.5	7.39
2	4	3/16/00 23:23		12.48	6.95	409.0	5.95
2	5	3/16/00 23:08		12.31	6.99	401.7	6.63
3	1	3/17/00 4:30		12.51	6.97	408.8	6.05
3	1	3/17/00 4:30	✓	12.51	7.08	408.3	5.66
3	2	3/17/00 4:50		12.56	6.92	404.0	6.24
3	3	3/17/00 5:05		13.35	7.10	380.2	8.12
3	4	3/17/00 3:54		12.38	7.01	408.1	5.95
3	5	3/17/00 3:36		13.37	7.17	378.0	8.36
4	1	3/17/00 8:56		EQUIPMENT FAILURE			
4	2	3/17/00 9:17		EQUIPMENT FAILURE			
4	3	3/17/00 9:35		EQUIPMENT FAILURE			
4	4	3/17/00 8:24		12.32	7.07	408.9	5.73
4	5	3/17/00 8:03		12.05	7.28	382.8	6.62
5	1	3/17/00 15:08		12.56	6.92	N/A	8.27
5	2	3/17/00 14:50		12.49	7.07	N/A	7.42
5	3	3/17/00 14:30		12.9	7.00	N/A	7.58
5	4	3/17/00 14:10		13.33	6.92	N/A	6.84
5	5	3/17/00 13:50		12.41	7.56	N/A	7.56
6	1	3/17/00 18:50		12.58	7.07	N/A	8.63
6	2	3/17/00 19:00		12.97	7.05	N/A	8.45
6	3	3/17/00 19:15		12.28	7.08	N/A	8.29
6	4	3/17/00 19:30		12.14	7.05	N/A	7.84
6	5	3/17/00 19:40		11.79	7.2	N/A	7.8

✓ : Duplicate sample taken.

NA: Not Available

Table 9

Summary Data for Water Quality

Event 1: 3/16/2000 16:30 - 3/18/2000 16:30

Cycle	Station	Time Collected	Duplicate	Hydrolab® Data			
				Temp °C	pH Units	SpCond mS/cm	DO mg/l
7	1	3/17/00 23:20		10.99	7.32	N/A	10.55
7	2	3/17/00 23:05		12.23	7.14	N/A	8.48
7	3	3/17/00 22:50		12.04	7.13	N/A	7.97
7	4	3/17/00 22:35		11.85	7.11	N/A	7.88
7	5	3/17/00 22:20		11.98	7.13	N/A	8.19
8	1	3/18/00 3:35		10.57	7.2	N/A	9.18
8	2	3/18/00 3:55		11.53	7.13	N/A	6.86
8	3	3/18/00 2:51		11.26	7.07	N/A	7.2
8	4	3/18/00 2:35		11.47	7.09	N/A	8.25
8	5	3/18/00 2:20		11.75	7.18	N/A	7.67
9	1	3/18/00 7:40		NO DATA			
9	2	3/18/00 7:20		NO DATA			
9	3	3/18/00 8:00		NO DATA			
9	4	3/18/00 7:00		NO DATA			
9	5	3/18/00 6:45		NO DATA			
10	1	3/18/00 11:30		8.25	6.93	N/A	9.45
10	2	3/18/00 11:13		10.91	6.86	N/A	7.22
10	3	3/18/00 10:57		10.58	6.9	N/A	7.43
10	4	3/18/00 10:36		11.32	6.97	N/A	8.2
10	5	3/18/00 10:30		11.33	7.07	N/A	7.46
11	1	3/18/00 15:10		9.04	6.95	N/A	9.28
11	2	3/18/00 14:55		11.38	6.86	N/A	7.07
11	3	3/18/00 14:40		11.52	6.9	N/A	6.8
11	4	3/18/00 14:30		11.58	6.97	N/A	6.87
11	5	3/18/00 14:15		11.63	7.07	N/A	7.39

✓ : Duplicate sample taken.

APPENDIX 1

Technician Log

Field Conditions Sheet

Lab Conditions Sheet

"WET WEATHER EVENT"

3/16 — 3/18

Technician Log

Sign in and out of every shift

Name	Sign In Time	Sign In Date	Sign Out Time	Sign Out Date	hrs
John Pohlman	5:15	3/11/00	17:05	3/11/00	12
Chad Miller	5:15	3/11/00	17:05	3/11/00	12
John Pohlman	~~15:30~~ 15:30	3/16/00	~~1202~~ 17:45	3/17/00	~~8.5~~ 22.5
Chad Miller	18:00	3/16/00	3/17/00 ←	~~0600~~	~~14~~ 14
Sheila Leatherford	23:15	3/16/00	1400	3/16/00	15
Clark Mitchell	4:30	3/17/00	2215	3/17/00	18
Rebecca Myers	12:00	~~3~~/17/00	1220	3/18/00	
Barry Spargo	14:00	3/17/00	0315	3/18/00	
Mike Bularo	~~0~~ 2200	3/17/00	1000	3/18/00	
Sheila Leatherford	12:05	3/18/00	1030	3/18/00	10.5
Richard Coffin	12:20	3/18/00	12:15 pm	3/15/00	
CLARK MITCHELL	0945	3/18/00	1735pm	3/18/00	8
CHAD MILLER	~~0~~600	3/18/00	1730pm	3/15/00	11.5
JOHN CALLAHAN	0600	3/18/00	1730 pm	3/18/00	
3	5				
John - 2	1000 ✓				
Chad - 3	1500 ✓				
Sheila - 2	1000 ✓				
Clark - 2	1000 ✓				

Field Lab Conditions

Record field lab conditions after each sampling session

Date	Time	Temp (°C)F	Humidity	Technician	Comments
3/11/00	9:55	~~65~~ 63	69%	JP	door open
3/16/00	19:30	61	78	JP	door open
3/17/00	5:30	64	73	JP	door closed
3/17/00	1805	59	35%	RHM	door open, coolish
3/17/00	2000	58	38%	CSM	Door closed
3/17/00	2200	61	38	CSM	Door closed
3/18	1000	61	34	CSM	Door closed
3/18	1500	63	30	CSM	Door closed

Field Conditions

Record Field Conditions before each sampling session

Date	Time	Temp (°C)	Humidity	Technician	Description of Weather (if rain -- drizzle, sprinkle, shower, hard rain, storm)
3/11/06	5:15	54	69	JP	cloudy
3/11/06	11:04	61	72	JP	sprinkle, has returned hard for short periods
3/16/06	16:10	66	37°	JP	no rain yet
3/11/06	~~16:10~~ 22:45	54	77°	JP	rain began & stopped
3/12/06	3:20	66	77°	JP	clear
3/17/06	7:35	57	60%	JP	overcast
3/17/06	2000	54	34	[illegible]	CLEAR LIGHT BREEZE FULL MOON
3/17/06	2200	34	30	[illegible]	CLEAR COLD
3/18	1000	38	~~26~~ 26	[illegible]	CLEAR COLD SUNNY
3/18	1400	42	26	[illegible]	CLEAR COOL SUNNY

APPENDIX 2

PE Evaluations

QA/QC Data from CAL

Analytical Products Group, Inc.

PERFORMANCE REPORT

WP Performance Summary

May 2000

APG Customer Code: 11045

Geo-Centers Inc
c/o NRL Building 207 RM 202
4555 Overlook Ave. SW
Washington, DC 20375

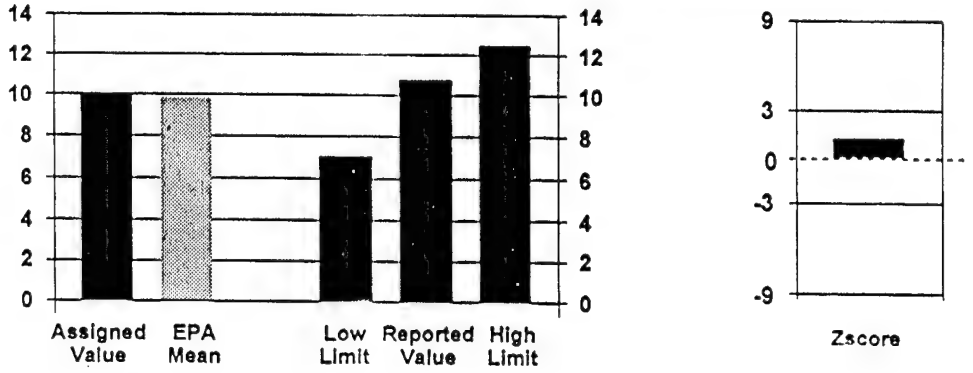
Laboratory of
EXCELLENCE

Product: Nutrient

Analyte	Product Level	Analyte Code	Reported Value	Assigned Value	Acceptance Range	Z-Score	Test Method	Evaluation
Ammonia Nitrogen as N	WP	31		2.14	1.59-2.7			
Ammonia Nitrogen as N	APG+	31		6.95	5.36-8.49			
Nitrate Nitrogen as N	WP	32		11.1	8.77-13.2			
Nitrate Nitrogen as N	APG+	32		8.31	6.56-9.89			
Orthophosphate as P	WP	33		3.42	2.92-3.96			
Orthophosphate as P	APG+	33		4.68	3.99-5.4			
Total Kjeldahl Nitrogen	WP	34	10.75	9.89	7.04-12.5	1.08	EPA 351.2	Acceptable
Total Kjeldahl Nitrogen	APG+	34	7.52	6.57	4.56-8.46	1.55	EPA 351.2	Acceptable
Total Phosphorus as P	WP	35		3.44	2.61-4.04			
Total Phosphorus as P	APG+	35		5.84	4.44-6.83			

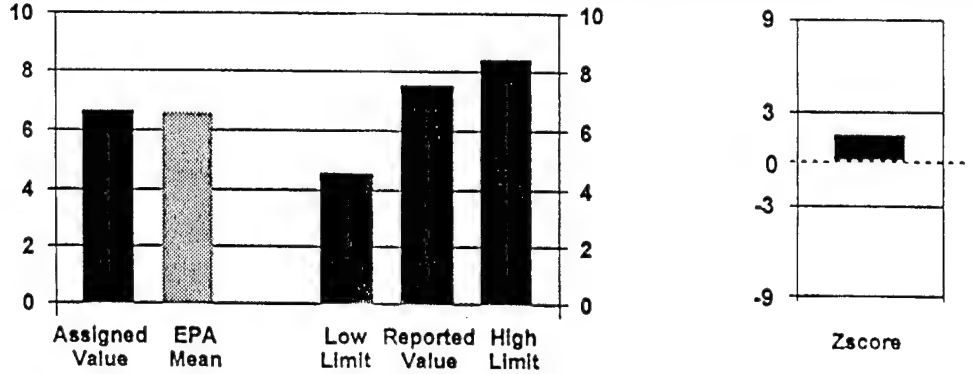
Nutrient Total Kjeldahl Nitrogen **Test Method** EPA 351.2 **Product Level** WP

Reported Value	10.75
Assigned Value	9.89
APG Certified Value	10.3 ± 0.12
EPA Mean	9.77
EPA Standard Deviation	0.91
Acceptance Range	7.04 - 12.5
Z-Score	1.08
Evaluation	Acceptable
Inter-Laboratory Statistics	
Study Mean	10.5
Study Standard Deviation	1.36
Number of Labs Reporting	38
Your Ranking	19/33
Laboratory Pass Percentage	86.84%



Nutrient Total Kjeldahl Nitrogen **Test Method** EPA 351.2 **Product Level** APG+

Reported Value	7.52
Assigned Value	6.57
APG Certified Value	6.83 ± 0.049
EPA Mean	6.51
EPA Standard Deviation	0.65
Acceptance Range	4.56 - 8.46
Z-Score	1.55
Evaluation	Acceptable
Inter-Laboratory Statistics	
Study Mean	6.88
Study Standard Deviation	0.51
Number of Labs Reporting	20
Your Ranking	12/17
Laboratory Pass Percentage	85.00%



Analytical Products Group, Inc.

PERFORMANCE REPORT

WP Performance Summary

August 2000

APG Customer Code: 11045

Geo-Centers Inc
c/o NRL Building 207 RM 202
4555 Overlook Ave. SW
Washington, DC 20375

Laboratory of
EXCELLENCE

APG Customer 11045 Geo-Centers Inc
EPA Lab Code N/A 4555 Overlook Ave. SW
Washington, DC 20375

Performance Summary

WP August 2000
Study Closing Date 09/15/2000

Product: Nutrient **Lot Number: 28516-28517**

Analyte	Product Level	Analyte Code	Reported Value	Assigned Value	Acceptance Range	Z-Score	Test Method	Evaluation
Ammonia Nitrogen as N	WP	31	8.21	8.12	6.27-9.89	0.22	EPA 350.1	Acceptable
Ammonia Nitrogen as N	APG+	31	6.00	6.02	4.62-7.36	0.013	EPA 350.1	Acceptable
Nitrate Nitrogen as N	WP	32	7.65	6.93	5.46-8.25	1.68	EPA 353.2	Acceptable
Nitrate Nitrogen as N	APG+	32	2.09	1.94	1.5-2.34	1.2	EPA 353.2	Acceptable
Orthophosphate as P	WP	33	5.36	5.1	4.36-5.89	0.92	EPA 365.1	Acceptable
Orthophosphate as P	APG+	33	4.10	3.87	3.3-4.47	1.09	EPA 365.1	Acceptable
Total Kjeldahl Nitrogen	WP	34		8.88	6.29-11.3			
Total Kjeldahl Nitrogen	APG+	34		4.09	2.71-5.47			
Total Phosphorus as P	WP	35	7.16	5.6	4.26-6.56	4.61	EPA 365.1	Not Acceptable
Total Phosphorus as P	APG+	35	5.03	3.76	2.86-4.42	5.35	EPA 365.1	Not Acceptable

APG Customer 11045 Geo-Centers Inc
EPA Lab Code N/A 4555 Overlook Ave. SW
Washington, DC 20375

Print Date September 26, 2000

Performance Summary

WP August 2000

Study Closing Date 09/15/2000

Product: Nutrient

Exception Reporting

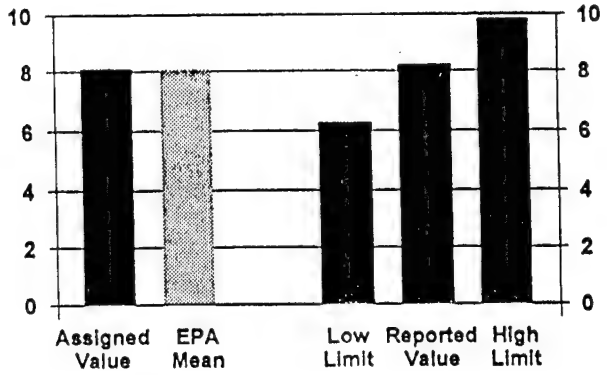
Analyte	Product Level	Analyte Code	Reported Value	Assigned Value	Acceptance Range	Z-Score	Test Method	Evaluation
Total Phosphorus as P	WP	35	7.16	5.6	4.26-6.56	4.61	EPA 365.1	Not Acceptable
Total Phosphorus as P	APG+	35	5.03	3.76	2.86-4.42	5.35	EPA 365.1	Not Acceptable

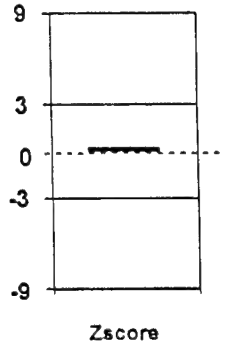
APG Customer 11045 Geo-Centers Inc
EPA Lab Code N/A 4555 Overlook Ave. SW
Washington, DC 20375

Study Closing Date 09/15/2000

Nutrient	Ammonia Nitrogen as N	Test Method	EPA 350.1	Product Level	WP

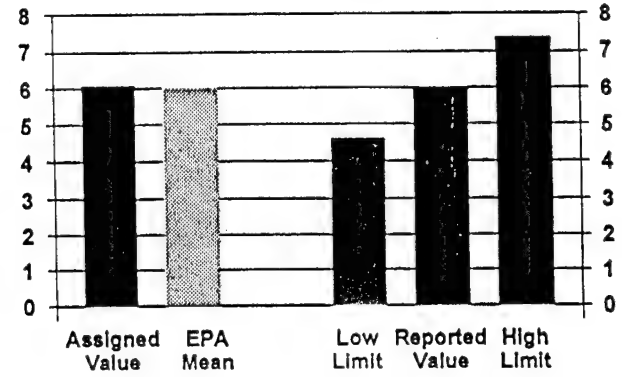
Reported Value	8.21
Assigned Value	8.12
APG Certified Value	8 ± 0.023
EPA Mean	8.08
EPA Standard Deviation	0.6
Acceptance Range	6.27 - 9.89
Z-Score	0.22
Evaluation	Acceptable
Inter-Laboratory Statistics	
Study Mean	8.18
Study Standard Deviation	0.54
Number of Labs Reporting	36
Your Ranking	5/28
Laboratory Pass Percentage	97.22%

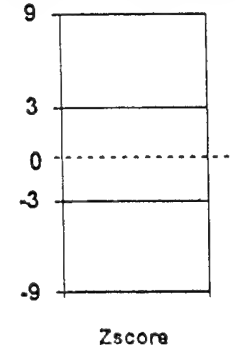




Nutrient	Ammonia Nitrogen as N	Test Method	EPA 350.1	Product Level	APG+

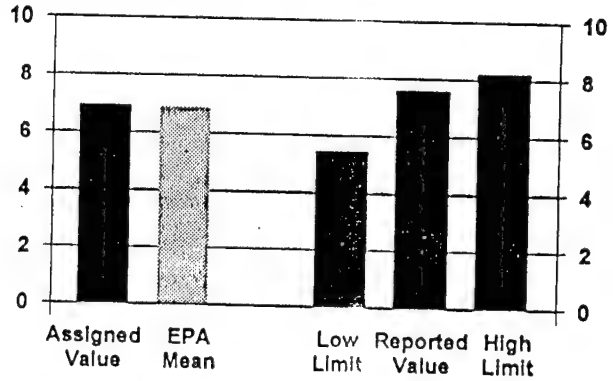
Reported Value	6.00
Assigned Value	6.02
APG Certified Value	6.01 ± 0.05
EPA Mean	5.99
EPA Standard Deviation	0.46
Acceptance Range	4.62 - 7.36
Z-Score	0.013
Evaluation	Acceptable
Inter-Laboratory Statistics	
Study Mean	6.22
Study Standard Deviation	0.41
Number of Labs Reporting	25
Your Ranking	2/25
Laboratory Pass Percentage	96.00%

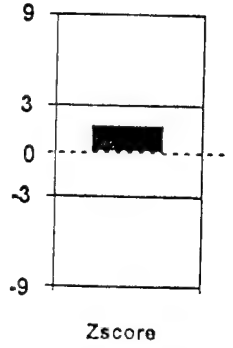




Nutrient Nitrate Nitrogen as N **Test Method** EPA 353.2 **Product Level** WP

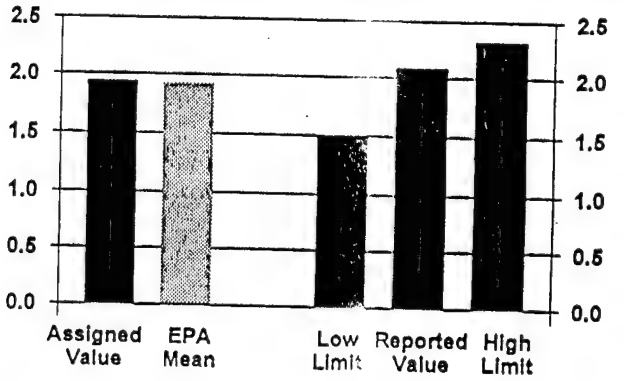
Reported Value	7.65
Assigned Value	6.93
APG Certified Value	7.04 ± 0.01
EPA Mean	6.86
EPA Standard Deviation	0.47
Acceptance Range	5.46 - 8.25
Z-Score	1.68
Evaluation	Acceptable
Inter-Laboratory Statistics	
Study Mean	7.07
Study Standard Deviation	0.55
Number of Labs Reporting	22
Your Ranking	17/21
Laboratory Pass Percentage	90.91%

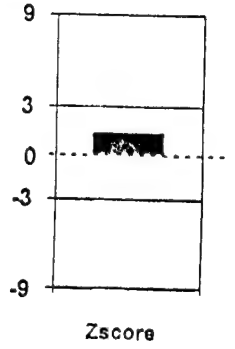




Nutrient Nitrate Nitrogen as N **Test Method** EPA 353.2 **Product Level** APG+

Reported Value	2.09
Assigned Value	1.94
APG Certified Value	1.94 ± 0.027
EPA Mean	1.92
EPA Standard Deviation	0.14
Acceptance Range	1.5 - 2.34
Z-Score	1.2
Evaluation	Acceptable

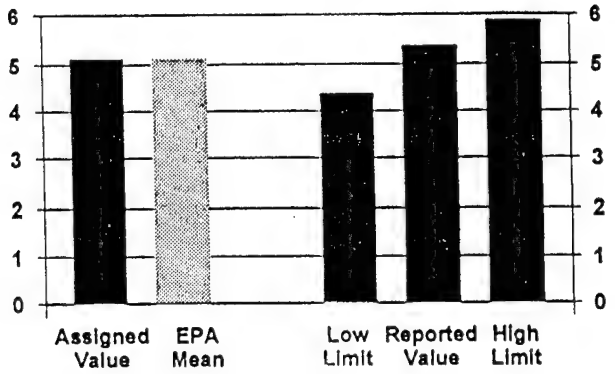


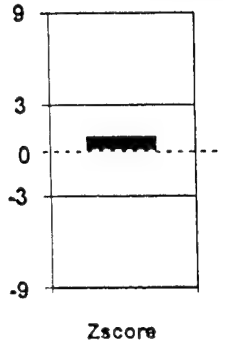


APG Customer 11045 Geo-Centers Inc
EPA Lab Code N/A 4555 Overlook Ave. SW
Washington, DC 20375

Nutrient:	Orthophosphate as P	Test Method	EPA 365.1	Product Level	WP

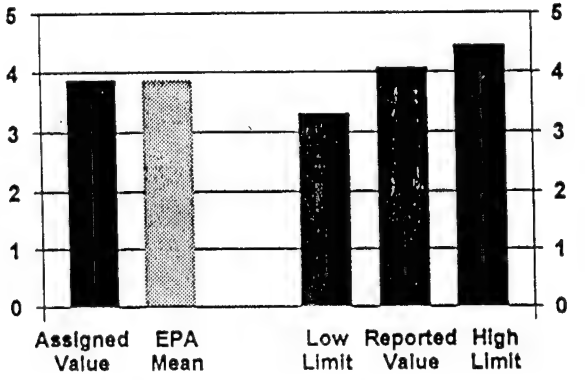
Reported Value	5.36
Assigned Value	5.1
APG Certified Value	5.05 ± 0.034
EPA Mean	5.12
EPA Standard Deviation	0.26
Acceptance Range	4.36 - 5.89
Z-Score	0.92
Evaluation	Acceptable
Inter-Laboratory Statistics	
Study Mean	5.21
Study Standard Deviation	0.18
Number of Labs Reporting	20
Your Ranking	11/14
Laboratory Pass Percentage	100.00%

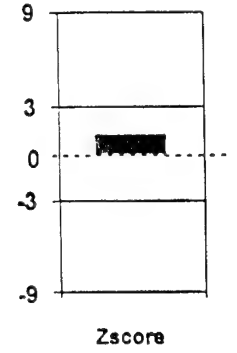




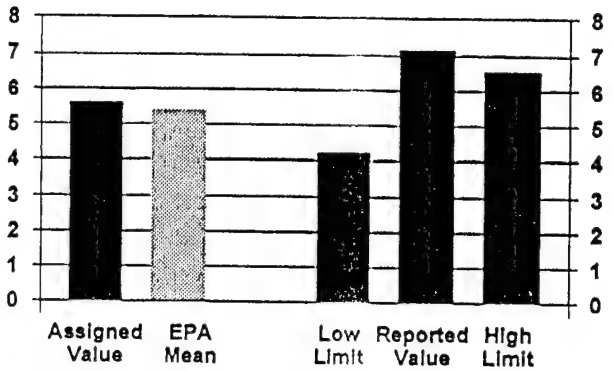
Nutrient:	Orthophosphate as P	Test Method	EPA 365.1	Product Level	APG+

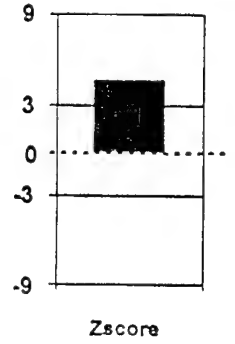
Reported Value	4.10
Assigned Value	3.87
APG Certified Value	3.87 ± 0.032
EPA Mean	3.89
EPA Standard Deviation	0.2
Acceptance Range	3.3 - 4.47
Z-Score	1.09
Evaluation	Acceptable



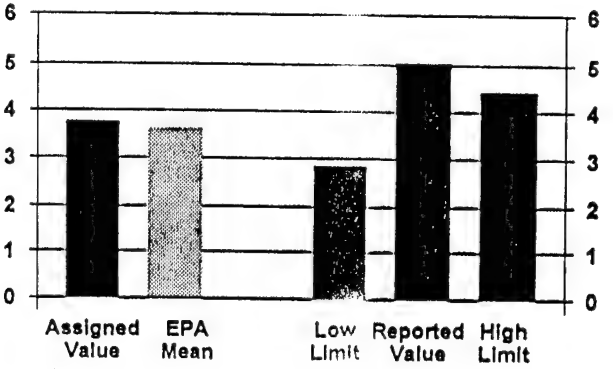


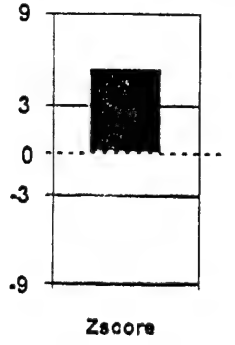
Nutrient	Total Phosphorus as P	Test Method	EPA 365.1	Product Level	WP
Reported Value	7.16				
Assigned Value	5.6				
APG Certified Value	5.58 ± 0.033				
EPA Mean	5.41				
EPA Standard Deviation	0.38				
Acceptance Range	4.26 - 6.56				
Z-Score	4.61				
Evaluation	Not Acceptable				
Inter-Laboratory Statistics					
Study Mean	5.7				
Study Standard Deviation	0.32				
Number of Labs Reporting	21				
Your Ranking	19/20				
Laboratory Pass Percentage	90.48%				





Nutrient	Total Phosphorus as P	Test Method	EPA 365.1	Product Level	APG+
Reported Value	5.03				
Assigned Value	3.76				
APG Certified Value	3.77 ± 0.036				
EPA Mean	3.64				
EPA Standard Deviation	0.26				
Acceptance Range	2.86 - 4.42				
Z-Score	5.35				
Evaluation	Not Acceptable				





Spike QA/QC Results from previous sample group (~~Event 3~~)

Sample ID	result	Spike mg/l	spike result	% recovery
153	0.78	1.0.	1.88	110
218	1.00	1.0	2.02	100
362	1.23	1.0	2.19	96
16	0.86	2.0	2.36	75
112	2.23	1.0	2.23	97
3117	1.13	1.0	2.04	91
306	0.73	1.0	1.74	100
307	1.23	1.0	1.87	65
405	0.99	2.0	3.24	112
421	2.65	1.0	2.91	26
439	0.72	1.0	1.61	89
424	0.97	2.0	2.72	87.5
482	0.77	2.0	2.80	101

Secondary Source QA sample

DATE	QA True Value	RESULTS	% Recovery
9-20-00	8.90	8.01	89
9-14-00	8.90	9.45	105
9-18-00	8.90	9.27	104
6-16-00	9.3	9.78	105
6-10-00	8.9	9.1	102
6-13-00	9.3	10.4	111
9-25	8.9	7.99	89

Event 1 Blank Table

	Event 1				
	Field 1	Field 2	Field 3	Field 4	Equip
TSS (mg/L)	0.0009	NA	NA	NA	0.0012
VSS (mg/L)	NA	NA	NA	NA	0
TOC (mg/L)	0.09	NA	NA	NA	0.38
DOC (mg/L)	0.41	NA	NA	NA	0.2
TKN (mg/L)	0	0.02	NA	NA	0.02
NH4 (mg/L)	0.004	0.005	0.004	0.005	0
TON (mg/L)	0.003	NA	NA	0.005	0.005
o-PO4 (mg/L)	0.047	0.029	0.03	NA	0.029
T-PO4 (mg/L)	0.047	0.029	0.029	0.029	0.029

APPENDIX 3

Chain of Custody Forms (NRL)

Chain of Custody Forms (CAL)

APPENDIX 4

Laboratory Data Sheets (NRL)

Raw Data Sheets (CAL)

Environmental Quality Sciences
U.S. Naval Research Laboratory
Code 6115, 4555, Overlook Ave Sw
Washington D.C. 20375
202-404-6416 Fax: 202-404-8515

Chain of Custody

Date 3/17 Page 1 of 1

Project Manager: John Pohlman
Organization: USNRL, Code 6115
Address:

Ship To:
Organization:
Address:

Sampler (Signature) 202-404-7736 Phone Number

Recommended Quantity and Preservative (Provide triple volume for QC samples)

Sample ID	Sample Date	Time	Matrix	Lab ID
SS- cycle 1-3	3/16-17		filter	
K - cycle 1-3	"		H_2O	
N - cycle 1-3	"		H_2O	
P - cycle 1-3	"		H_2O	
DC - cycle 1-3	"		H_2O	
TC - "	"		H_2O	
PC - "	"		filter	

LABORATORY ANALYSIS	Number of Containers
Fecal coliforms	3
200ml in $Na_2S_2O_3$	9
Nutrients	3
Orthophosphate	3
Dissolved Organic Carbon	3
Particulate Organic Carbon	3
TKN	3
Total phosphorus	3
Total suspended soils	3
Volatile suspended soils	3
CBODs	30
TOC	30

FIELD CONDITIONS	RECIEPT CONDITIONS
pH	
Temperature °C	4 / 4
Conductivity	4 / 4
Dissolved Oxygen mg/L	-20 / ✓
Turbidity °C	-20 / ✓
	? / N
	4 / ✓
	4 / ✓

Project Information

Project Number:
Project Name:
Job Order Number:
Via:

Sample Reciept

Total Number of Containers: 210
Chain of Custody Seals: Y/N/NA (NA)
Seals Intact: Y/N/NA
Received in Good Condition: Y/N

TAT: ☐ 24h ☐ 48h ☐ 72h ☐ 1wk ☐ 2wk

Sample Disposal Instructions

☐ Disposal ☐ Return ☐ Pickup

Comments:

Relinquished By: 1

Signature: Time: 6:10
Printed Name: John Pohlman Date: 3/17
Company: Geo-Centers

Relinquished By: 1

Signature Time:
Printed Name: Date:
Company:

Relinquished By: 2

Signature: Time: 0830
Printed Name: Chad Mumlee Date:
Company: NRL Code 6115

Relinquished By: 2

Signature Time:
Printed Name: Date:
Company:

Relinquished By: 3

Signature Time:
Printed Name: Date:
Company:

Relinquished By: 3

Signature Time:
Printed Name: Date:
Company:

Distribution White: Reciplent Canary: Project Manager Pink: Project file

Environmental Quality Sciences
U.S. Naval Research Laboratory
Code 6115, 4555, Overlook Ave Sw
Washington D.C. 20375
202-404-6416 Fax: 202-404-8515

Chain of Custody

Date 3/18/00 Page 1 of 1

Project Manager: John Pohlman
Organization: USNRL Code 6100
Address:

Ship To:
Organization:
Address:

RRC/T — 202 767 8065
Sampler (Signature) Phone Number

Recommended Quantity and Preservative (Provide triple volume for QC samples)

Sample ID	Sample Date	Time	Matrix	Lab ID
SS Cycle 7-9	3/17-18		filter	
K Cycle 7-9			H_2O	
N Cycle 7-9			H_2O	
P Cycle 7-9			H_2O	
DC Cycle 7-9			H_2O	
PC Cycle 7-9			filter	
TC Cycle 7-9	↓		H_2O	

LABORATORY ANALYSIS	200ml in $Na_2S_2O_3$	Fecal coliforms	Nutrients	Orthophosphate	Dissolved Organic Carbon	Particulate Organic Carbon	TKN	Total phosphorus	Total suspended soils	Volatile suspended soils	CBODs	TOC	FIELD CONDITIONS	pH	Temperature °C	Conductivity	Dissolved Oxygen mg/L	Turbidity	°C	RECIEPT CONDITIONS	Temperature °C			Number of Containers
SS Cycle 7-9									✓	✓										4				3 C
K Cycle 7-9							✓													4				3 P
N Cycle 7-9			✓	✓																-20				3 H
P Cycle 7-9								✓												-20				3 H
DC Cycle 7-9					✓															4				3 G
PC Cycle 7-9						✓														4				3 G
TC Cycle 7-9												✓								4				3 C

Project Information

Project Number:
Project Name:
Job Order Number:
Via:

Sample Reciept

Total Number of Containers: 210
Chain of Custody Seals: Y/N/NA
Seals Intact?: Y/N/NA
Received In Good Condition?: Y/N

TAT: ☐ 24h ☐ 48h ☐ 72h ☐ 1wk ☐ 2wk

Sample Disposal Instructions

☐ Disposal ☐ Return ☐ Pickup

Comments:
Delivered to NRL 11:15 3/18/00

Relinquished By: 1	Relinquished By: 2	Relinquished By: 3
Signature: RRC/T Time: 10:00	Signature Time:	Signature Time:
Printed Name: RS Coffin Date: 3/18/00	Printed Name: Date:	Printed Name: Date:
Company: NRL	Company:	Company
Relinquished By: 1	**Relinquished By: 2**	**Relinquished By: 3**
Signature Time:	Signature Time:	Signature Time:
Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
Company:	Company:	Company:

Distribution White: Recipient Canary: Project Manager Pink: Project file

05102

Environmental Quality Sciences
U.S. Naval Research Laboratory
Code 6115, 4555, Overlook Ave Sw
Washington D.C. 20375
202-404-6416 Fax: 202-404-8515

Chain of Custody

Date 3/18/00 Page 1 of 1

Project Manager: John Pohlman
Organization: NRL Code 6115
Address:

Ship To:
Organization:
Address:

Sampler (Signature) 202 404 8814 Phone Number

Sample ID	Sample Date	Time	Matrix	Lab ID
SS-cycle 4-6	3/17	—	filter	
K-cycle 4-6	3/17	—	H_2O	
N-cycle 4-6	3/17	—	H_2O	
P-cycle 4-6	3/17	—	H_2O	
DC-cycle 4-6	3/17	—	H_2O	
PC-cycle 4-6	3/17	—	filter	
TC-cycle 4-6	3/17	—	H_2O	

Recommended Quantity and Preservative (Provide triple volume for QC samples)

LABORATORY ANALYSIS	Fecal coliforms	200ml in $Na_2S_2O_3$	Nutrients	Orthophosphate	Dissolved Organic Carbon	Particulate Organic Carbon	TKN	Total phosphorus	Total suspended soils	Volatile suspended soils	CBODs	TOC	FIELD CONDITIONS	pH	Temperature °C	Conductivity	Dissolved Oxygen mg/L	Turbidity °C	RECIEPT CONDITIONS	Temperature °C	Number of Containers
									✓	✓										4	2
							✓													4	3
			✓	✓																-20	3
								✓												-20	3
					✓															4	2
						✓														4	2
												✓								4	3

Project Information

Project Number:	
Project Name:	
Job Order Number:	
Via:	

Sample Reciept

Total Number of Containers	20
Chain of Custody Seals Y/N/NA	NA
Seal Intact? Y/N/NA	NA
Received in Good Condition? Y/N	NA

TAT: ☐ 24h ☐ 48h ☐ 72h ☐ 1wk ☐ 2wk

Sample Disposal Instructions

☐ Disposal ☐ Return ☐ Pickup

Comments:

Relinquished By: 1
Signature: [signature] Time: 2130
Printed Name: [illegible] Date: 3/17/00
Company: [illegible]

Relinquished By: 2
Signature: [signature] Time: 9:15
Printed Name: B. Spargo Date: 3/18/00
Company:

Relinquished By: 3
Signature: Time:
Printed Name: Date:
Company:

Relinquished By: 1
Signature: Time:
Printed Name: Date:
Company:

Relinquished By: 2
Signature: Time:
Printed Name: Date:
Company:

Relinquished By: 3
Signature: Time:
Printed Name: Date:
Company:

Distribution White: Reciplent Canary: Project Manager Pink: Project file

Environmental Quality Sciences
U.S. Naval Research Laboratory
Code 6115, 4555, Overlook Ave Sw
Washington D.C. 20375
202-404-6416 Fax: 202-404-8515

Chain of Custody

Date 3/18/00 Page 1 of 1

Project Manager: John Pohlman
Organization: USNRL Code 6115
Address:

Ship To:
Organization:
Address:

Chad M Miller
Sampler (Signature) Phone Number

Recommended Quantity and Preservative (Provide triple volume for QC samples)

Sample ID	Sample Date	Time	Matrix	Lab ID
SS-Cycle 10-11	3/18		filter	
IC Cycle 10-11			H2O	
N Cycle 10-11			H2O	
P Cycle 10-11			H2O	
DC Cycle 10-11			H2O	
TC Cycle 10-11			H2O	
PC Cycle 10-11	"		filter	

LABORATORY ANALYSIS	Fecal coliforms	200ml in $Na_2S_2O_3$	Nutrients	Orthophosphate	Dissolved Organic Carbon	Particulate Organic Carbon	TKN	Total phosphorus	Total suspended soils	Volatile suspended soils	CBODs	TOC	FIELD CONDITIONS	pH	Temperature °C	Conductivity	Dissolved Oxygen mg/L	Turbidity °C	RECIEPT CONDITIONS	Temperature °C			Number of Containers
SS-Cycle 10-11									✓	✓									4				20
IC Cycle 10-11							✓												4				20
N Cycle 10-11			✓	✓															-20				20
P Cycle 10-11								✓											-20				20
DC Cycle 10-11					✓														4				20
TC Cycle 10-11												✓							4				20
PC Cycle 10-11						✓													4				20

Project Information

Project Number:
Project Name:
Job Order Number:
Via:
TAT: ☐24h ☐48h ☐72h ☐1wk ☐2wk

Sample Reciept

Total Number of Containers: 20
Chain of Custody Seals: Y/N/NA: NA
Seals Intact?: Y/N/NA: NA
Received in Good Condition?: Y/N: Y

Sample Disposal Instructions

☐ Disposal ☐ Return ☐ Pickup

Comments: Supplies delivered to and stored at NRL.
Joe Callahan 17:45 3/18/00

Relinquished By: 1
Signature: Chad M Miller Time: 17:00
Printed Name: Chad M Miller Date: 3/18/00
Company: GEO CENTERS

Relinquished By: 1
Signature Time:
Printed Name: Date:
Company:

Relinquished By: 2
Signature: Joe Callahan Time: 17:45
Printed Name: John Callahan Date: 3/18/00
Company:

Relinquished By: 2
Signature Time:
Printed Name: Date:
Company:

Relinquished By: 3
Signature Time:
Printed Name: Date:
Company:

Relinquished By: 3
Signature Time:
Printed Name: Date:
Company:

Distribution White: Recipient Canary: Project Manager Pink: Project file

05102

CHESAPEAKE ANALYTICAL LAB.
CHAIN OF CUSTODY FORM

106 A ROCKEFELLER CT. WALDORF, MD 20602
301-932-4775

SAMPLE SOURCE: John Pohlman — 202 404 0446 1736 / Fax 202-404-8515

PAGE: 1 of 1

COMPANY NAME, CONTACT PERSON & PHONE NUMBER: NRL
Code 6115 4555 Overlook Ave SW
Wash D.C. 20375

COLLECTOR'S SIGNATURE: Chad M Melly
Chad

CONTAINER TYPE: P=PLASTIC, G=GLASS
SAMPLE TYPE: G= GRAB, C= COMPOSIT

SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	PRESERVATIVE	CONTAINER TYPE	SAMPLE TYPE	ANALYSIS REQUIRED	IN LAB pH
1. Event 1			H_2SO_4			TKN	
2. * K01 – K107 (KFB1&2 KEB1)			dry ice				
3.							
4. Event 2			H_2SO_4			TKN	
* K115 – K228 KEB4 KFB3,6,7			ice				
)							
7.							
8.							
9.							
10.							
11.							
12. * Some #'s missing							

RELEASED BY: _____ D/T: ___/___ @ ___ REC'D BY: _____ D/T: ___/___ @ ___

RELEASED BY: Chad M Melly D/T: 5/12 1425 @ ___ REC'D BY: _____ D/T: ___/___ @ ___

SAMPLES RECEIVED IN LAB BY: DMH DATE/TIME: 5/12 @ 1425 ICED? (YES) - NO TEMP ____

PH CHECKED IN LAB BY: _____ DATE: _____

Environmental Quality Sciences
U.S. Naval Research Laboratory
Code 6115, 4555, Overlook Ave Sw
Washington D.C. 20375
202-404-6416 Fax: 202-404-8515

Chain of Custody

H_2SO_4 added to samples w/pH @ ~7 Date 6/29/00 Page 1 of 1
Csm 7/5/00 0850

Project Manager: Jeb Pulliam
Organization: USNRL
Address:

Ship To:
Organization:
Address:

Sampler (Signature) 202-404-1776 Phone Number

Recommended Quantity and Preservative (Provide triple volume for QC samples)

Sample ID	Results	Sample Date	Time	Matrix	~~Lab ID~~ PH
K65	0.72			H_2O	~7 → <2
K226	0.71				<2
K84	1.07				~7 → <2
K221	0.77				<2
K81	1.18				~7 → <2
K228	0.88				<2
K227	0.82				<2
K146	0.98				~7 → <2
K222	0.95				<2
[redacted]				(Csm	7-5-00)

LABORATORY ANALYSIS: 200ml in $Na_2S_2O_3$; Fecal coliforms; Nutrients; Orthophosphate; Dissolved Organic Carbon; Particulate Organic Carbon; TKN; Total phosphorus; Total suspended soils; Volatile suspended soils; CBODs

FIELD CONDITIONS: pH; Temperature °C; Conductivity; Dissolved Oxygen mg/L; Turbidity; °C

RECIEPT CONDITIONS: Temperature FROZEN °C on Dry Ice; Number of Containers

		-20	-9
			5

Project Information

Project Number:
Project Name:
Job Order Number:
Via:
TAT: ☐24h ☐48h ☐72h ☐1wk ☐2wk

Sample Reciept

Total Number of Containers:
Chain of Custody Seals Y/N/NA
Seals Intact? Y/N/NA
Received in Good Condition? Y/N

Sample Disposal Instructions

☐ Disposal ☐ Return ☐ Pickup

Comments: Recd RMH 6/29/00 @ 1550

Relinquished By: 1	Relinquished By: 2	Relinquished By: 3
Signature: Time: 1713	Signature: Time: 1550	Signature: Time: 0930
Printed Name: Jeb Pulliam Date: 6/29	Printed Name: Date:	Printed Name: Date: 6/30
Company: Geo-Centers	Company:	Company:
Relinquished By: 1	Relinquished By: 2	Relinquished By: 3
Signature: Time:	Signature: Time:	Signature: Time:
Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
Company:	Company:	Company:

Distribution White: Reciplent Canary: Project Manager Pink: Project file

05102

Dissolved Oxygen Titrations

WWMS Event 1

Biological Oxygen Demand

Cycle	Anal ID	Bott_ID	Sta	TP	Time Stored	Time Fixed	Inc. (D)	Tit. Vol	Rep	mg O2/L	Avg.	Std Dev	BOD (mg/L)	Comments
1	1	20	5	t0		3/16/00 19:35		4.061	1	10.78				
	2	27		t0				4.100	2	10.89	10.84	0.08		
	4	79		t1	3/16/00 19:17	3/21/00 16:50	4.90	3.185	1	8.35				
	5	5		t1				3.205	2	8.40	8.37	0.04	2.46	
	6	21	4	t0		3/16/00 19:35		3.293	1	8.65				
	7	6		t0				3.193	2	8.37	8.51	0.20		
	8	28		t1	3/16/00 19:17	3/21/00 17:21	4.92	2.679	1	6.94				
	9	1		t1				2.677	2	6.94	6.94	0.00	1.57	
	10	80	1	t0		3/16/00 19:35		4.062	1	10.78				
	11	23		t0				3.980	2	10.56	10.67	0.16		
	12	4		t1	3/16/00 19:17	3/21/00 17:55	4.94	3.235	1	8.49				
	13	86		t1				3.077	2	8.05	8.27	0.31	2.40	
	14	22	2	t0		3/16/00 19:35		3.163	1	8.29				
	15	24		t0				3.147	2	8.24	8.26	0.03		
	16	12		t1	3/16/00 19:17	3/21/00 18:53	4.98	2.278	1	5.83				
	17	33		t1				2.323	2	5.95	5.89	0.09	2.38	
	18	9	3	t0		3/16/00 19:35		3.037	1	7.94				
	19	2		t0				3.112	2	8.14	8.04	0.15		
	20	19		t1	3/16/00 19:17	3/21/00 16:50	4.90	2.294	1	5.87				
	21	35		t1				2.275	2	5.82	5.84	0.04	2.20	
2	22	87	5	t0		3/17/00 1:26		3.282	1	8.62				
	23	10		t0				3.421	2	9.00	8.81	0.27		
	24	81		t1	3/17/00 1:09	3/22/00 5:15	5.17	2.658	1	6.88				
	25	32		t1				2.378	2	6.10	6.49	0.55	2.32	
	26	74	4	t0		3/17/00 1:26		2.986	1	7.79				
	27	30		t0				3.066	2	8.02	7.91	0.16		
	28	97		t1	3/17/00 1:09	3/22/00 5:15	5.17	2.042	1	5.17				
	29	25		t1					2		5.17	#DIV/0!	2.74	
	30	29	1	t0		3/17/00 1:26		4.615	1	12.32				
	31	18		t0				4.631	2	12.37	12.34	0.03		
	32	73		t1	3/17/00 1:09	3/22/00 5:17	5.17	3.54	1	9.33				

	68	102		t1	3/17/00 10:15	3/22/00 8:20	4.92	2.93	1	7.64				
	69	96		t1				2.506	2	6.46	7.05	0.83	0.83	
	70	113	1	t0		3/17/00 10:15		3.531	1	9.31				
	71	111		t0				3.544	2	9.35	9.33	0.03		
	72	115		t1	3/17/00 10:15	3/22/00 9:00	4.95	1.479	1	3.60				
	73	114		t1				1.52	2	3.72	3.66	0.08	5.67	
	74	91	2	t0		3/17/00 10:15		3.681	1	9.73				
	75	103		t0				3.627	2	9.58	9.65	0.11		
	76	82		t1	3/17/00 10:15	3/22/00 9:20	4.96	2.156	1	5.49				
	77	78		t1				2.295	2	5.87	5.68	0.27	3.97	
	78	107	3	t0		3/17/00 10:15		3.505	1	9.24				
	79	112		t0				3.475	2	9.15	9.19	0.06		
	80	120		t1	3/17/00 10:15	3/22/00 9:25	4.97	2.485	1	6.40				
	81	90		t1				2.653	2	6.87	6.63	0.33	2.56	
5	82	124	5	t0		3/17/00 16:10		3.156	1	8.27				
	83	127		t0				3.194	2	8.37	8.32	0.07		
	84	125		t1	3/17/00 15:45	3/22/00 13:50	4.92	2.537	1	6.55				
	85	128		t1				2.567	2	6.63	6.59	0.06	1.73	
	86	130	4	t0		3/17/00 16:12		3.294	1	8.65				
	87	129		t0				3.21	2	8.42	8.53	0.17		
	88	122		t1	3/17/00 15:45	3/22/00 14:15	4.94	2.125	1	5.40				
	89	123		t1				2.175	2	5.54	5.47	0.10	3.06	
	90	121	3	t0		3/17/00 16:15		3.473	1	9.15				
	91	118		t0				3.494	2	9.21	9.18	0.04		
	92	126		t1	3/17/00 15:45	3/22/00 14:28	4.95	2.106	1	5.35				
	93	135		t1				2.062	2	5.23	5.29	0.09	3.89	
	94	138	2	t0		3/17/00 16:17		3.472	1	9.14				
	95	133		t0				3.411	2	8.98	9.06	0.12		
	96	139		t1	3/17/00 15:45	3/22/00 14:45	4.96	1.225	1	2.90				
	97	137		t1					2		2.90	#DIV/0!	6.16	
	98	134	1	t0		3/17/00 16:19		3.843	1	10.18				
	99	132		t0				3.836	2	10.16	10.17	0.01		
	100	136		t1	3/17/00 15:45	3/22/00 15:01	4.97	2.131	1	5.42				
	101	131		t1				2.039	2	5.16	5.29	0.18	4.88	
6	102	43	1	t0		3/17/00 20:02		3.755	1	9.93				

	103	45		t0				3.720	2	9.83	9.88	0.07		
	104	51		t1	3/17/00 20:00	3/22/00 16:50	4.87	2.985	1	7.79				
	105	49		t1				1.61	2	3.97	5.88	2.70	4.00	
	106	42	2	t0		3/17/00 20:02		3.401	1	8.95				
	107	48		t0				3.496	2	9.21	9.08	0.19		
	108	46		t1	3/17/00 20:00	3/22/00 16:50	4.87	1.453	1	3.53				
	109	41		t1				1.277	2	3.04	3.29	0.35	5.79	
	110	40	3	t0		3/17/00 20:02		3.370	1	8.86				
	111	140		t0				3.396	2	8.93	8.90	0.05		
	112	47		t1	3/17/00 20:00	3/22/00 16:25	4.85	2.017	1	5.10				
	113	39		t1				1.627	2	4.02	4.56	0.77	4.34	
	114	37	4	t0		3/17/00 20:02		3.878	1	10.27				
	115	38		t0				3.36	2	8.83	9.55	1.02		
	116	141		t1	3/17/00 20:00	3/22/00 16:50	4.87	2.273	1	5.81				
	117	142		t1				2.225	2	5.68	5.75	0.09	3.81	
	118	44	5	t0		3/17/00 20:02		3.456	1	9.10				
	119	50		t0				3.448	2	9.08	9.09	0.02		
	120	143		t1	3/17/00 20:00	3/22/00 16:50	4.87	2.858	1	7.44				
	121	144		t1				2.932	2	7.64	7.54	0.15	1.55	
7	122	116	5	t0		3/18/00 0:01		3.152	1	8.26				
	123	118		t0				3.241	2	8.50	8.38	0.17		
	124			t1	3/17/00 23:58	3/23/00 5:06	5.21		1					
	125	58		t1				1.382	2	3.34	3.34		5.04	
	126	121	4	t0		3/18/00 0:03		3.378	1	8.88				
	127	133		t0				3.321	2	8.73	8.80	0.11		
	128	138		t1	3/17/00 23:58	3/23/00 5:09	5.22	2.03	1	5.14				
	129	129		t1				1.885	2	4.73	4.94	0.29	3.87	
	130	57	3	t0		3/18/00 0:05		3.370	1	8.86				
	131	119		t0				3.348	2	8.80	8.83	0.04		
	132	59		t1	3/17/00 23:58	3/23/00 5:10	5.22	0.750	1	1.58				
	133	130		t1				1.112	2	2.58	2.08	0.71	6.75	
	134	109	2	t0		3/18/00 0:07		3.391	1	8.92				
	135	124		t0				3.394	2	8.93	8.92	0.01		
	136	134		t1	3/17/00 23:58	3/23/00 5:11	5.22	1.427	1	3.46				
	137	132		t1				1.327	2	3.18	3.32	0.20	5.60	

	138	53	1	t0		3/18/00 0:09		4.534	1	12.10				
	139	127		t0				4.635	2	12.38	12.24	0.20		
	140	52		t1	3/17/00 23:58	3/23/00 5:12	5.22	2.618	1	6.77				
	141	54		t1				2.839	2	7.39	7.08	0.43	5.16	
8	142	156	5	t0		3/18/00 4:30		3.290	1	8.64				
	143	146		t0				3.170	2	8.31	8.47	0.24		
	144	157		t1	3/18/00 4:30	3/23/00 5:14	5.03	2.426	1	6.24				
	145	149		t1				2.256	2	5.76	6.00	0.33	2.47	
	146	60	4	t0		3/18/00 4:32		3.199	1	8.39				
	147	158		t0				3.152	2	8.26	8.32	0.09		
	148	124		t1	3/18/00 4:32	3/23/00 5:14	5.03	2.223	1	5.67				
	149	155		t1				1.774	2	4.42	5.05	0.88	3.27	
	150	109	3	t0		3/18/00 4:34		3.242	1	8.51				
	151	119		t0				3.102	2	8.12	8.31	0.28		
	152	148		t1	3/18/00 4:34	3/23/00 5:15	5.03	0.634	1	1.26				
	153	150		t1				1.262	2	3.00	2.13	1.23	6.18	
	154	147	2	t0		3/18/00 4:36		3.335	1	8.76				
	155	153		t0				3.287	2	8.63	8.70	0.09		
	156	151		t1	3/18/00 4:36	3/23/00 5:16	5.03	1.25	1	2.97				
	157	152		t1				1.296	2	3.10	3.03	0.09	5.67	
	158	145	1	t0		3/18/00 4:38		4.228	1	11.25				
	159	154		t0				4.108	2	10.91	11.08	0.24		
	160	121		t1	3/18/00 4:38	3/23/00 5:16	5.03	2.411	1	6.20				
	161	53		t1				1.995	2	5.04	5.62	0.82	5.46	
9	162	116	5	t0		3/18/00 8:00		3.066	1	8.02				
	163	42		t0					2		8.02	#DIV/0!		
	164	44		t1	3/18/00 8:00	3/23/00 6:45	4.95	3.441	1	9.06				
	165	37		t1				3.473	2	9.15	9.10	0.06	-1.09	
	166	156	4	t0		3/18/00 8:00		2.913	1	7.59				
	167	127		t0				3.006	2	7.85	7.72	0.18		
	168	133		t1	3/18/00 8:00	3/23/00 7:10	4.97	2.338	1	5.99				
	169	146		t1				2.326	2	5.96	5.98	0.02	1.74	
	170	145	2	t0		3/18/00 8:00		2.955	1	7.71				
	171	109		t0				3.060	2	8.00	7.85	0.21		
	172	119		t1	3/18/00 8:00	3/23/00 7:21	4.97	1.387	1	3.35				

	173	60		t1				1.365	2	3.29	3.32	0.04	4.54	
	174	154	1	t0		3/18/00 8:00		3.994	1	10.60				
	175	38		t0				4.004	2	10.62	10.61	0.02		
	176	158		t1	3/18/00 8:00	3/23/00 7:36	4.98	2.614	1	6.76				
	177	50		t1				2.517	2	6.49	6.63	0.19	3.98	
	178	147	3	t0		3/18/00 8:00			1					
	179	153		t0				3.318	2	8.72	8.72			
	180	118		t1	3/18/00 8:00	3/23/00 8:01	5.00	2.256	1	5.76				
	181	57		t1				2.086	2	5.29	5.53	0.33	3.19	
10	182	66	5	t0		3/18/00 12:15		3.419	1	9.00				
	183	62		t0				3.294	2	8.65	8.82	0.25		
	184	65		t1	3/18/00 10:30	3/23/00 11:45	5.05	2.756	1	7.15				
	185	70		t1				2.791	2	7.25	7.20	0.07	1.62	
	186	116	4	t0		3/18/00 12:15		3.177	1	8.32				
	187	45		t0				3.038	2	7.94	8.13	0.27		
	188	55		t1	3/18/00 10:36	3/23/00 12:00	5.06	2.337	1	5.99				
	189	68		t1				2.311	2	5.92	5.95	0.05	2.18	
	190	127	2	t0		3/18/00 12:15		3.354	1	8.82				
	191	40		t0				3.248	2	8.52	8.67	0.21		
	192	56		t1	3/18/00 11:13	3/23/00 12:05	5.04	1.548	1	3.80				
	193	43		t1				1.396	2	3.37	3.59	0.30	5.08	
	194	63	1	t0		3/18/00 12:15		4.213	1	11.20				
	195	67		t0				4.203	2	11.18	11.19	0.02		
	196	140		t1	3/18/00 11:30	3/23/00 12:30	5.04	3.131	1	8.20				
	197	71		t1				2.919	2	7.61	7.90	0.42	3.29	
	198	48	3	t0		3/18/00 12:15		3.035	1	7.93				
	199	61		t0				3.045	2	7.96	7.94	0.02		
	200	69		t1	3/18/00 10:57	3/23/00 12:35	5.07	1.381	1	3.33				
	201	156		t1				1.32	2	3.16	3.25	0.12	4.70	
11	202	15	5	t0		3/18/00 15:50		3.554	1	9.37				
	203	113		t0				3.434	2	9.04	9.21	0.24		
	204	94		t1	3/18/00 14:15	3/23/00 11:45	4.90	2.502	1	6.45				
	205	91		t1				2.219	2	5.66	6.06	0.56	3.15	
	206	153	4	t0		3/18/00 15:50		3.136	1	8.21				
	207	38		t0				3.162	2	8.28	8.25	0.05		

	208	154		t1	3/18/00 14:30	3/23/00 12:00	4.90		1					
	209	42		t1				2.255	2	5.76	5.76	#DIV/0!	2.49	
	210	103	3	t0		3/18/00 15:50		3.176	1	8.32				
	211	112		t0				3.028	2	7.91	8.12	0.29		
	212	104		t1	3/18/00 14:40	3/23/00 12:05	4.89	1.789	1	4.47				
	213	111		t1				1.708	2	4.24	4.35	0.16	3.76	
	214	72	2	t0		3/18/00 15:50		3.214	1	8.43				
	215	119		t0				3.184	2	8.34	8.39	0.06		
	216	64		t1	3/18/00 14:55	3/23/00 12:30	4.90	1.434	1	3.48				
	217	60		t1				1.389	2	3.35	3.42	0.09	4.97	
	218	77	1	t0		3/18/00 15:50		4.182	1	11.12				
	219	107		t0				4.161	2	11.06	11.09	0.04		
	220	147		t1	3/18/00 15:10	3/23/00 12:35	4.89	1.415	1	3.43				
	221	99		t1				1.256	2	2.99	3.21	0.31	7.88	

Dissolved Oxygen Standards and Blanks

WWMS Event 1

Biological Oxygen Demand

Date of Standardization

3/11/00

Standard

	Tit. Vol. (ml)
Rep 1	8.507
Rep 2	8.561
Rep 3	8.562
Average	8.543
Std Dev	0.031
% Error	0.37%

Blank

	1st Tit. Vol. (ml)	2nd Tit. Vol. (ml)	Blank
Rep 1	2.234	2.014	0.22
Rep 2	2.217	1.992	0.225
Rep 3	2.212	2.13	0.082
Average			0.176
Std Dev			0.012
% Error			6.57%

Standard Factorization

Stand Vol. (ml)

2

Approx Titrant Conc.

0.014

Stand Factor

2

Titrant Vol (STD)

4.272

Equation Volume is the actual volume factored to what it would be if 10mls of the standard (0.01M KIO3) were titrated with an approximate 0.14M titrant

Total Seston Sample Data Sheet

Sample Date: 3/16-3/18/00 Event 1
Cruise: Anacstia Wet Weather
Analysis Date: 3/29/00

SAMPLE_ID	REP	STATION	TIME	VOL.	PREFILTER WT (g)	POST FILTER_W 103-105°C (g)	SESTON (g)	CONC. (mg/L)	Ave. SS Conc.	sd SS Conc.	POST FILTER WT 550°C	Uncorrected VSS BLANK	Corrected VSS BLANK	VSS CONC.	Ave. VSS	sd VSS
FB1	1	field blank		200	0.1280	0.1289	0.0009	4.5000				0.1289	0.1272	*636.00*		
FB2	2	field blank									0.1355	-0.1355	-0.1372	*#DIV/0!*		
FB3	3	field blank		100							0.1261	-0.1261	-0.1278	*-1.28*		
EqB1	1	Eqp blank		200	0.1278	0.1290	0.0012	6.0000				0.1290	0.1273	*0.64*		
EqbB2	2	Eqp blank									0.1261	-0.1261	-0.1278	*#DIV/0!*		
SS01	1	5	3/16/00 23:08	243	0.1275	0.1311	0.0036	14.8148	15.5102	0.9834	0.1289	0.0022	0.0005	2.06	2.61	0.7810
SS02	2	5	3/16/00 23:08	253	0.1289	0.1330	0.0041	16.2055			0.1305	0.0025	0.0008	3.16		
SS03	1	4	3/16/00 23:23	255	0.1277	0.1368	0.0091	35.6863	34.7819	1.2790	0.1335	0.0033	0.0016	6.27	5.38	1.2620
SS04	2	4	3/16/00 23:23	245	0.1284	0.1367	0.0083	33.8776			0.1339	0.0028	0.0011	4.49		
SS05	1	1	3/16/00 23:50	226	0.1266	0.1321	0.0055	24.3363	24.6136	0.3921	0.1297	0.0024	0.0007	3.10	3.51	0.5889
SS06	2	1	3/16/00 23:50	229	0.1275	0.1332	0.0057	24.8908			0.1306	0.0026	0.0009	3.93		
SS07	1	2	3/17/00 0:14	225	0.1264	0.1354	0.0090	40.0000	40.0000		0.1322	0.0032	0.0015	6.67	6.67	
SS08	2	2		261	0.1282	0.1358	0.0076	29.1188			0.1274	0.0084	0.0067	25.67		
SS09	1	3	3/17/00 0:32	259	0.1280	0.1397	0.0117	45.1737	40.8055	6.1776	0.1361	0.0036	0.0019	7.34	7.34	
SS10	2	3		247	0.1268	0.1358	0.0090	36.4372			0.1200	0.0158	0.0141	57.09		
SS11	1	5	3/16/00 16:40	242	0.1288	0.1318	0.0030	12.3967	12.9780	0.8221	0.1295	0.0023	0.0006	2.48	2.72	0.3442
SS12	2	5		236	0.1274	0.1306	0.0032	13.5593			0.1282	0.0024	0.0007	2.97		
SS13	1	4	3/16/00 17:20	276	0.1282	0.1330	0.0048	17.3913	19.2648	2.6495	0.1305	0.0025	0.0008	2.90	3.48	0.8248
SS14	2	4		246	0.1280	0.1332	0.0052	21.1382			0.1305	0.0027	0.0010	4.07		
SS15	1	1	3/16/00 18:05	259	0.1277	0.1363	0.0086	33.2046	32.4868	1.0152	0.1331	0.0032	0.0015	5.79	5.24	0.7767
SS16	2	1		277	0.1271	0.1359	0.0088	31.7690			0.1329	0.0030	0.0013	4.69		
SS17	1	2	3/16/00 18:25	245	0.1289	0.1395	0.0106	43.2653	42.2577	1.4250	0.1362	0.0033	0.0016	6.53	5.14	1.9662
SS18	2	2		240	0.1260	0.1359	0.0099	41.2500			0.1333	0.0026	0.0009	3.75		
SS19	1	3	3/16/00 18:41	276	0.1260	0.1359	0.0099	35.8696	35.3409	0.7476	0.1327	0.0032	0.0015	5.43	5.62	0.2597
SS20	2	3		293	0.1298	0.1400	0.0102	34.8123			0.1366	0.0034	0.0017	5.80		
SS21	1	5	3/17/00 3:36	229	0.1277	0.1318	0.0041	17.9039	17.1416	1.0781	0.1286	0.0032	0.0015	6.55	5.00	2.1934
SS22	2	5		232	0.1271	0.1309	0.0038	16.3793			0.1284	0.0025	0.0008	3.45		
SS23	1	4	3/17/00 3:54	270	0.1274	0.1353	0.0079	29.2593	28.4982	1.0762	0.1313	0.0040	0.0023	8.52	7.54	1.3783
SS24	2	4		274	0.1273	0.1349	0.0076	27.7372			0.1314	0.0035	0.0018	6.57		
SS25	1	3	3/17/00 4:30	256	0.1273	0.1336	0.0063	24.6094	24.0807	0.7476	0.1308	0.0028	0.0011	4.30	4.27	0.0352
SS26	2	3		259	0.1297	0.1358	0.0061	23.5521			0.1330	0.0028	0.0011	4.25		
SS27A	1	2	3/17/00 4:50	238	0.1291	0.1300	0.0009	39.4958	39.3682	0.1805	0.1282	0.0018	0.0001	6.72	6.74	0.0201

SS27B	1	2		238	0.1269	0.1354	0.0085				0.1322	0.0032	0.0015			
SS28	2	2		237	0.1292	0.1385	0.0093	39.2405			0.1352	0.0033	0.0016	6.75		
SS29	1	1	3/17/00 5:05	238	0.1285	0.1354	0.0069	28.9916	30.8675	2.6529	0.1327	0.0027	0.0010	4.20	5.20	1.4093
SS30	2	1		226	0.1280	0.1354	0.0074	32.7434			0.1323	0.0031	0.0014	6.19		
SS31	1	5	3/17/00 8:03	253	0.1278	0.1336	0.0058	22.9249	23.3576	0.6119	0.1302	0.0034	0.0017	6.72	6.59	0.1893
SS32	2	5		248	0.1272	0.1331	0.0059	23.7903			0.1298	0.0033	0.0016	6.45		
SS33	1	4	3/17/00 8:24	244	0.1272	0.1360	0.0088	36.0656	35.2668	1.1296	0.1320	0.0040	0.0023	9.43	9.18	0.3465
SS34	2	4		235	0.1271	0.1352	0.0081	34.4681			0.1314	0.0038	0.0021	8.94		
SS35	1	1	3/17/00 8:56	261	0.1278	0.1379	0.0101	38.6973	39.1017	0.5719	0.1343	0.0036	0.0019	7.28	6.93	0.4917
SS36	2	1		243	0.1285	0.1381	0.0096	39.5062			0.1348	0.0033	0.0016	6.58		
SS37	1	2	3/17/00 9:17	265	0.1278	0.1368	0.0090	33.9623	35.1630	1.6980	0.1337	0.0031	0.0014	5.28	5.60	0.4427
SS38	2	2		220	0.1270	0.1350	0.0080	36.3636			0.1320	0.0030	0.0013	5.91		
SS39	1	3	3/17/00 9:35	278	0.1282	0.1410	0.0128	46.0432	45.2231	1.1598	0.1375	0.0035	0.0018	6.47	6.04	0.6207
SS40	2	3		268	0.1279	0.1398	0.0119	44.4030			0.1366	0.0032	0.0015	5.60		
SS41	1	5	3/17/00 13:50	238	0.1281	0.1338	0.0057	23.9496	24.4748	0.7428	0.1312	0.0026	0.0009	3.78	3.77	0.0223
SS42	2	5		240	0.1280	0.1340	0.0060	25.0000			0.1314	0.0026	0.0009	3.75		
SS43	1	4	3/17/00 14:10	269	0.1277	0.1374	0.0097	36.0595	36.9487	1.2575	0.1345	0.0029	0.0012	4.46	5.71	1.7599
SS44	2	4		259	0.1296	0.1394	0.0098	37.8378			0.1359	0.0035	0.0018	6.95		
SS45	1	3	3/17/00 14:30	249	0.1293	0.1390	0.0097	38.9558	39.3684	0.5835	0.1359	0.0031	0.0014	5.62	6.46	1.1857
SS46	2	3		274	0.1296	0.1405	0.0109	39.7810			0.1368	0.0037	0.0020	7.30		
SS47	1	2	3/17/00 14:50	259	0.1295	0.1377	0.0082	31.6602	32.1799	0.7350	0.1346	0.0031	0.0014	5.41	5.74	0.4796
SS48	2	2		263	0.1299	0.1385	0.0086	32.6996			0.1352	0.0033	0.0016	6.08		
SS49	1	1	3/17/00 15:08	257	0.1292	0.1422	0.0130	50.5837	50.1989	0.5441	0.1382	0.0040	0.0023	8.95	8.94	0.0194
SS50	2	1		269	0.1297	0.1431	0.0134	49.8141			0.1390	0.0041	0.0024	8.92		
SS51	2	5	3/17/00 19:40	258	0.1280	0.1341	0.0061	23.6434	24.3217	0.9593	0.1314	0.0027	0.0010	3.88	1.94	2.7407
SS52	1	5		232	0.1277	0.1335	0.0058	25.0000			0.1332	0.0003	0.0000	0.00		
SS53	2	4	3/17/00 19:30	243	0.1281	0.1352	0.0071	29.2181	29.7000	0.6814	0.1321	0.0031	0.0014	5.76	5.24	0.7312
SS54	1	4		275	0.1281	0.1364	0.0083	30.1818			0.1334	0.0030	0.0013	4.73		
SS55	2	3	3/17/00 19:15	249	0.1271	0.1377	0.0106	42.5703	41.7485	1.1622	0.1348	0.0029	0.0012	4.82	5.50	0.9605
SS56	1	3		259	0.1289	0.1395	0.0106	40.9266			0.1362	0.0033	0.0016	6.18		
SS57	2	2	3/17/00 19:00	242	0.1287	0.1385	0.0098	40.4959	39.4787	1.4385	0.1345	0.0040	0.0023	9.50	8.21	1.8251
SS58	1	2		260	0.1290	0.1390	0.0100	38.4615			0.1355	0.0035	0.0018	6.92		
SS59	2	1	3/17/00 18:50	258	0.1284	0.1359	0.0075	29.0698	34.6870	7.9439	0.1330	0.0029	0.0012	4.65	9.17	6.3902
SS60	1	1		263	0.1272	0.1378	0.0106	40.3042			0.1325	0.0053	0.0036	13.69		
SS61	1	5	3/17/00 22:50	279	0.1281	0.1353	0.0072	25.8065	26.8817	1.5207	0.1324	0.0029	0.0012	4.30	9.14	6.8430
SS62	2	5		279	0.1285	0.1363	0.0078	27.9570			0.1307	0.0056	0.0039	13.98		
SS63	1	4	3/17/00 22:35	X	0.1266	0.1383	0.0117		39.6429	#DIV/0!	0.1346	0.0037	0.0020	#VALUE!	#######	#######
SS64	2	4		280	0.1281	0.1392	0.0111	39.6429			0.1373	0.0019	0.0002	0.71		
SS65	1	3	3/17/00 22:20	279	0.1295	0.1427	0.0132	47.3118	47.3118	#DIV/0!	0.1393	0.0034	0.0017	6.09	#######	#######

SS66	2	3		X	0.1279	0.1420	0.0141				0.1381	0.0039	0.0022	#VALUE!		
SS67	1	2	3/17/00 23:05	286	0.1271	0.1412	0.0141	49.3007	45.4682	5.4200	0.1358	0.0054	0.0037	12.94	5.95	
SS68	2	2		269	0.1284	0.1396	0.0112	41.6357			0.1363	0.0033	0.0016	5.95		
SS69	1	1	3/17/00 23:20	249	0.1282	0.1391	0.0109	43.7751	41.9250	2.6164	0.1361	0.0030	0.0013	5.22	5.42	0.2808
SS70	2	1		267	0.1280	0.1387	0.0107	40.0749			0.1355	0.0032	0.0015	5.62		
SS71	1	5	3/19/00 2:51	280	0.1272	0.1362	0.0090	32.1429	30.2583	2.6652	0.1325	0.0037	0.0020	7.14	5.65	2.1147
SS72	2	5		289	0.1282	0.1364	0.0082	28.3737			0.1335	0.0029	0.0012	4.15		
SS73	1	4	3/18/00 2:20	284	0.1270	0.1383	0.0113	39.7887	39.2206	0.8035	0.1343	0.0040	0.0023	8.10	8.10	#DIV/0!
SS74	2	4		282	0.1274	0.1383	0.0109	38.6525								
SS75	1	3	3/18/00 2:35	260	0.1273	0.1414	0.0141	54.2308	53.2972	1.3203	0.1377	0.0037	0.0020	7.69	8.03	0.4747
SS76	2	3		275	0.1277	0.1421	0.0144	52.3636			0.1381	0.0040	0.0023	8.36		
SS77	1	2	3/18/00 3:55	295	0.1287	0.1411	0.0124	42.0339	41.4322	0.8510	0.1372	0.0039	0.0022	7.46	6.67	1.1139
SS78	2	2		289	0.1263	0.1381	0.0118	40.8304			0.1347	0.0034	0.0017	5.88		
SS79	1	1	3/18/00 3:35	294	0.1268	0.1360	0.0092	31.2925	43.1463	16.7637	0.1332	0.0028	0.0011	3.74	6.12	3.3648
SS80	2	1		200	0.1264	0.1374	0.0110	55.0000			0.1340	0.0034	0.0017	8.50		
SS81	1	5	3/18/00 6:45	270	0.1278	0.1325	0.0047	17.4074	17.1351	0.3851	0.1303	0.0022	0.0005	1.85	1.85	#DIV/0!
SS82	2	5		255	0.1278	0.1321	0.0043	16.8627								
SS83	1	4	3/18/00 7:00	275	0.1292	0.1397	0.0105	38.1818	36.9091	1.7999	0.1369	0.0028	0.0011	4.00	4.91	1.2856
SS84	2	4		275	0.1274	0.1372	0.0098	35.6364			0.1339	0.0033	0.0016	5.82		
SS85	1	2	3/18/00 7:20	250	0.1282	0.1384	0.0102	40.8000	36.1500	6.5761	0.1252	0.0132	0.0115		#DIV/0!	#DIV/0!
SS86	2	2		200	0.1287	0.1350	0.0063	31.5000								
SS87	1	1	3/18/00 7:40	200	0.1287	0.1339	0.0052	26.0000	25.0000	1.4142	0.1315	0.0024	0.0007	3.50	3.25	0.3536
SS88	2	1		200	0.1277	0.1325	0.0048	24.0000			0.1302	0.0023	0.0006	3.00		
SS89	1	3	3/18/00 8:00	200	0.1282	0.1334	0.0052	26.0000	26.0000	0.0000	0.1307	0.0027	0.0010	5.00	5.00	0.0000
SS90	2	3		200	0.1287	0.1339	0.0052	26.0000			0.1312	0.0027	0.0010	5.00		
SS91	1	5	3/18/00 10:30	200	0.1287	0.1311	0.0024	12.0000	12.2500	0.3536	0.1291	0.0020	0.0003	1.50	2.00	0.7071
SS92	2	5		200	0.1288	0.1313	0.0025	12.5000			0.1291	0.0022	0.0005	2.50		
SS93	1	4	3/18/00 10:36	200	0.1289	0.1333	0.0044	22.0000	23.0000	1.4142	0.1310	0.0023	0.0006	3.00	5.00	2.8284
SS94	2	4		200	0.1297	0.1345	0.0048	24.0000			0.1314	0.0031	0.0014	7.00		
SS95	1	3	3/18/00 10:57	200	0.1290	0.1359	0.0069	34.5000	36.5000	2.8284	0.1332	0.0027	0.0010	5.00	5.75	1.0607
SS96	2	3		200	0.1303	0.1380	0.0077	38.5000			0.1350	0.0030	0.0013	6.50		
SS97	1	2	3/18/00 11:13	200	0.1299	0.1397	0.0098	49.0000	49.2500	0.3536	0.1361	0.0036	0.0019	9.50	8.75	1.0607
SS98	2	2		200	0.1292	0.1391	0.0099	49.5000			0.1358	0.0033	0.0016	8.00		
SS99	1	1	3/18/00 11:30	200	0.1291	0.1355	0.0064	32.0000	29.0000	4.2426	0.1330	0.0025	0.0008	4.00	2.75	1.7678
SS100	2	1		200	0.1291	0.1343	0.0052	26.0000			0.1323	0.0020	0.0003	1.50		
SS101	1	5	3/18/00 14:15	200	0.1281	0.1312	0.0031	15.5000	15.5000	0.0000	0.1288	0.0024	0.0007	3.50	3.00	0.7071
SS102	2	5		200	0.1281	0.1312	0.0031	15.5000			0.1290	0.0022	0.0005	2.50		
SS103	1	4	3/18/00 14:30	200	0.1287	0.1331	0.0044	22.0000	22.0000	0.0000	0.1306	0.0025	0.0008	4.00	4.00	0.0000
SS104	2	4		200	0.1291	0.1335	0.0044	22.0000			0.1310	0.0025	0.0008	4.00		

SS105	1	3	3/18/00 14:40	200	0.1298	0.1361	0.0063	31.5000	31.0000	0.7071	0.1331	0.0030	0.0013	6.50	5.75	1.0607
SS106	2	3		200	0.1288	0.1349	0.0061	30.5000			0.1322	0.0027	0.0010	5.00		
SS107	1	2	3/18/00 14:55	200	0.1282	0.1393	0.0111	55.5000	56.5000	1.4142	0.1355	0.0038	0.0021	10.50	9.75	1.0607
SS108	2	2		200	0.1298	0.1413	0.0115	57.5000			0.1378	0.0035	0.0018	9.00		
SS109	1	1	3/18/00 15:10	200	0.1302	0.1342	0.0040	20.0000	21.2500	1.7678	0.1321	0.0021	0.0004	2.00	3.00	1.4142
SS110	2	1		200	0.1300	0.1345	0.0045	22.5000			0.1320	0.0025	0.0008	4.00		

Total Seston Blank Data Sheet

Sample Date: 3/16-3/18/00 Event 1
Cruise: Anacstia Wet Weather
Analysis Date: 3/29/00

	Pre-Ignition-Blank	Post-Ignition Blank	
SAMPLE	WT (g)	WT (g)	Difference
B1	0.1270	0.1253	0.0017
B2	0.1267	0.1254	0.0013
B3	0.1300	0.1280	0.0020

0.0017	Avg.
0.0003512	StdDev

Ammonia Event #1
Run Results Report
Results: A:\EVNT1&2.RST
Results completed: 15:31 September 15, 2000.
Operator: MITCH

Time	Cup	Name	Ammonia Height	mg/L Calc.	Flags	
10:22	0	Carryover	962.027	0.010487		
10:23	0	Carryover	90.24725	9.71E-05		
10:25	0	Baseline	-1.53E-05	-0.000978	BL	
10:26	0	Cal 0	234.1581	0.001812		
10:28	1	Cal 1	12819.51	0.151799		
10:29	2	Cal 2	104382	1.243002		
10:31	3	Cal 3	167766.1	1.998387		
10:32	0	BLANK	-635.1459	-0.008548	LO	
10:34	0	BLANK	-543.9033	-0.00746	LO	
10:35	4	ICV	120777.6	1.438398		4.1%
10:37	0	READ B/L	0	-0.000978	BL	
10:38	5	N13	38554.43	0.458497		
10:40	6	N15	44304.55	0.527024		
10:41	7	N17	3678.939	0.042866		
10:43	8	N19	17783.89	0.210962		
10:44	9	N21	33674.91	0.400345		
10:46	10	N23	1057.494	0.011624		
10:47	11	N25	8186.779	0.096588		
10:49	12	N27	-7180.327	-0.08655	LO	
10:50	13	N29	2782.312	0.03218		
10:52	14	N31	11975.79	0.141744		
10:53	14	N31	44094.07	0.524516		
10:55	0	BLANK	-899.1579	-0.011694	LO	
10:56	0	BLANK	-493.1416	-0.006855	LO	
10:58	71	CCV	107558.7	1.280861		3.3%
10:59	0	READ B/L	0	-0.000978	BL	
11:01	15	N30 DUP.	11599.16	0.137255		
11:02	16	N33	34265.63	0.407385		
11:04	17	N35	43434.66	0.516657		
11:05	18	N37	9718.557	0.114843		
11:07	19	N36 DUP	9818.578	0.116035		
11:08	20	N39	45398.88	0.540066		
11:10	21	N41	45353.95	0.539531		
11:11	22	N43	31406.96	0.373316		
11:13	23	N45	41894.72	0.498305		
11:14	24	N47	10484.74	0.123974		
11:16	24	N47	10380.82	0.122736		
11:17	0	BLANK	-825.3615	-0.010815	LO	
11:19	0	BLANK	-204.1137	-0.003411	LO	
11:20	71	CCV	107018.5	1.274423		2.8%

Samples Indicated with a bold "I" exceeded the CCV value by more than 11%.

11:22	0	READ B/L	0	-0.000978	BL	
11:23	25	N49	11365.53	0.134471		
11:25	26	N51	29188.16	0.346874		
11:26	27	N53	40029.66	0.476078		
11:28	28	N55	41479.44	0.493356		
11:29	29	N57	24757.92	0.294076		
11:31	30	N56 DUP	24643.03	0.292707		
11:32	31	N59	11630.33	0.137627		
11:34	32	N61	11988.96	0.141901		
11:35	33	N63	8795.002	0.103837		
11:37	34	N65	14418.15	0.170851		
11:38	34	N65	14451.07	0.171243		
11:40	0	BLANK	-121.1011	-0.002422	LO	
11:41	0	BLANK	-203.7317	-0.003406	LO	
11:43	72	CCV	107191.6	1.276486		2.9%
11:44	0	READ B/L	0	-0.000978	BL	
11:46	35	N67	32347.89	0.38453		
11:47	36	N69	43990.6	0.523283		
11:49	37	N71	37116.76	0.441363		
11:50	38	N73	42095.56	0.500699		
11:52	39	N75	34881.57	0.414725		
11:53	40	N77	20442.51	0.242647		
11:55	41	N76 DUP	257160.4	3.06375	HI	
11:56	42	N79	7040.059	0.082922	FL	
11:58	43	N81	8610.341	0.101636	FL	
11:59	44	N83	42571.59	0.506372		
12:01	0	BLANK	-183.5911	-0.003166	LO	
12:02	0	BLANK	84.59563	2.98E-05		
12:04	72	CCV	108789.5	1.295529		4.5%
12:05	0	READ B/L	0	-0.000978	BL	
12:07	45	N85	38720.58	0.460477		
12:08	46	N87	43135.15	0.513088		
12:10	47	N89	9033.433	0.106678		
12:11	48	N91	9830.521	0.116178		
12:13	49	N101	22650.9	0.268965		
12:14	50	N99	45114.21	0.536674		
12:16	51	N95	39904.73	0.474589		
12:17	52	N93	11687.51	0.138308		
12:19	53	N97	38179.46	0.454028		
12:20	53	N97	38525.24	0.458149		
12:22	54	N96 DUP	36443.18	0.433336		
12:23	0	BLANK	-274.8562	-0.004254	LO	
12:25	0	BLANK	-471.8942	-0.006602	LO	
12:26	73	CCV	108535.7	1.292504		4.2%
12:28	0	READ B/L	0	-0.000978	BL	
12:29	55	**N103**	41735.5	0.496408	I	
12:31	56	**N105**	46262.25	0.550355	I	
12:32	57	**N107**	45198.04	0.537673	I	
12:34	58	**N109**	35242.04	0.419021	I	

Samples Indicated with a bold "I" exceeded the CCV value by more than 11%.

12:35	59	**N111**	11549.15	0.13666	I	
12:37	60	**N113**	49860.22	0.593234	I	
12:38	61	**N115**	47346.13	0.563273	I	
12:40	62	**N117**	50082.91	0.595888	I	
12:41	63	N116 DUP	47683.78	0.567297	I	
12:43	64	**N119**	46912.7	0.558107	I	
12:44	0	BLANK	7366.883	0.086817	I	
12:46	0	BLANK	8111.231	0.095688	I	
12:47	73	CCV	125229.8	1.491457	F	20.3%
12:49	0	READ B/L	0.000488	-0.000978	BL	
12:50	65	**N121**	22609.43	0.268471	I	
15:24	28	N77 RE C	21350.37	0.253466		
15:26	29	N76 DUP	27277.48	0.324103		

Samples Indicated with a bold "I" exceeded the CCV value by more than 11%.

TON Event #1
Run Results Report
Results: A:\ORTHOP\BEVNT1&2.RST
Results completed: 16:35 September 22, 2000.
Operator: MITCH

Time	Cup	Name	Height	Nitrate+Nitrite Calc.	Flags	Cal. Error
9:44	0	Carryover	348.8717	-0.019482	LO	
9:46	0	Carryover	82.51909	-0.019945	LO	
9:48	0	Baseline	2.86E-06	-0.020088	BL	
9:50	0	Cal 0	-40.64071	-0.020159	LO	
9:52	1	Cal 1	97973.72	0.150219		
9:54	2	Cal 2	762093.9	1.304656		
9:56	3	Cal 3	1139261	1.960284		
9:58	0	BLANK	-163.7339	-0.020373	LO	
10:00	0	BLANK	-106.6938	-0.020274	LO	
10:02	4	ICV	869752.9	1.4918		0.55%
10:04	0	READ B/L	1.53E-05	-0.020088	BL	
10:06	8	NO2 1.5	834419.8	1.43038		
10:08	9	NO3 1.5	867077.9	1.487149		
10:10	10	N13	583983.5	0.995048		
10:12	11	N15	569831.5	0.970447		
10:14	12	N17	558958.7	0.951547		
10:16	13	N19	525304.9	0.893047		
10:18	14	N21	550552.7	0.936935		
10:20	15	N23	107320.1	0.166466		
10:22	16	N25	106491.7	0.165026		
10:24	17	N27	84505.15	0.126807		
10:26	18	N29	59099.43	0.082644		
10:28	19	N31	63019.57	0.089458		
10:30	0	BLANK	-289.545	-0.020592	LO	
10:32	0	BLANK	-256.4296	-0.020534	LO	
10:34	5	CCV	740660	1.267398		-2.21%
10:36	0	READ B/L	0	-0.020088	BL	
10:38	20	N30 DUP.	115197.1	0.180158		
10:40	21	N33	611890.1	1.043558		
10:42	22	N35	551808.2	0.939117		
10:44	23	N37	537271.3	0.913848		
10:46	24	N36 DUP	529668.9	0.900633		
10:48	25	N39	557485.3	0.948986		
10:50	26	N41	566102.8	0.963966		
10:52	27	N43	617181.3	1.052755		
10:54	28	N45	568783.8	0.968626		
10:56	29	N47	515449.9	0.875916		
10:58	0	BLANK	-186.5128	-0.020413	LO	
11:00	0	BLANK	-107.957	-0.020276	LO	
11:02	5	CCV	735568.8	1.258548		-1.50%

11:04	0	READ B/L	0	-0.020088 BL	
11:06	30	N49	509841.9	0.866168	
11:08	31	N51	540120.6	0.918801	
11:10	32	N53	567708	0.966756	
11:12	33	N55	549934.1	0.93586	
11:14	34	N57	503339.9	0.854865	
11:16	35	N56 DUP	522390.5	0.887981	
11:18	36	N59	505554	0.858714	
11:20	37	N61	571038.3	0.972545	
11:22	38	N63	507869.1	0.862738	
11:24	39	N65	523654.4	0.890178	
11:26	0	BLANK	-179.7392	-0.020401 LO	
11:28	0	BLANK	-112.671	-0.020284 LO	
11:30	6	CCV	753576.1	1.28985	-4.02%
11:32	0	READ B/L	0	-0.020088 BL	
11:34	40	N67	528335	0.898314	
11:36	41	N69	561489.4	0.955946	
11:38	42	N71	587186.8	1.000616	
11:40	43	N73	576632.4	0.982269	
11:42	44	N75	528940	0.899366	
11:44	45	N77	525333.5	0.893097	
11:46	46	N76 DUP	522623.7	0.888386	
11:48	47	N79	496600.8	0.843151	
11:50	48	N81	537398.4	0.914069	
11:52	49	N83	512909.3	0.8715	
11:54	0	BLANK	-141.2757	-0.020334 LO	
11:56	0	BLANK	-128.2437	-0.020311 LO	
11:58	6	CCV	717155.6	1.22654	1.09%
12:00	0	READ B/L	0	-0.020088 BL	
12:02	50	N85	546232.8	0.929426	
12:04	51	N87	566499.7	0.964656	
12:06	52	N89	500435.4	0.849816	
12:08	53	N91	526827.8	0.895694	
12:10	54	N101	656146.1	1.120488	
12:12	55	N99	563983.5	0.960282	
12:14	56	N95	515108.1	0.875322	
12:16	57	N93	521362.3	0.886194	
12:18	58	N97	533206.4	0.906782	
12:20	59	N96 DUP	518081.8	0.880491	
12:22	0	BLANK	-118.908	-0.020295 LO	
12:24	0	BLANK	-69.60396	-0.020209 LO	
12:26	7	CCV	741607.9	1.269046	-2.34%
12:28	0	READ B/L	0	-0.020088 BL	
12:30	60	N103	563674.7	0.959745	
12:32	61	N105	558595.1	0.950915	
12:34	62	N107	515833	0.876582	
12:36	63	N109	503152.6	0.85454	
12:38	64	N111	534499.7	0.90903	
12:40	65	N113	569012.1	0.969023	

12:42	66	N115	530941.3	0.902845	
12:44	67	N117	510259.6	0.866894	
12:46	68	N116 DUP	514469.8	0.874212	
12:48	69	N119	498173.6	0.845885	
12:50	0	BLANK	-103.1161	-0.020268	LO
12:52	0	BLANK	-123.3193	-0.020303	LO
12:54	7	CCV	727130.6	1.24388	-0.31%
12:56	0	READ B/L	0	-0.020088	BL
12:58	70	N121	523904.2	0.890612	

O-PO4 Event #1
Run Results Report
Results: A:\ORTHOP\BEVNT1&2.RST
Results completed: 16:35 September 22, 2000.
Operator: MITCH

Time	Cup	Name	Height	Ortho-Phosphate Calc.	Flags	Cal. Error
9:44	0	Carryover	101.8268	0.003762		
9:46	0	Carryover	28.73068	0.003268		
9:48	0	Baseline	1.19E-06	0.003074	BL	
9:50	0	Cal 0	-36.92448	0.002825		
9:52	1	Cal 1	21217.23	0.146265		
9:54	2	Cal 2	184122.2	1.245679		
9:56	3	Cal 3	295471.9	1.997156		
9:58	0	BLANK	-53.2117	0.002715		
10:00	0	BLANK	-46.38968	0.002761		
10:02	4	ICV	203618.9	1.377258		8.18%
10:04	0	READ B/L	0	0.003074	BL	
10:06	8	NO2 1.5	-107.7903	0.002347		
10:08	9	NO3 1.5	-78.609	0.002544		
10:10	10	N13	555.9808	0.006827		
10:12	11	N15	604.0087	0.007151		
10:14	12	N17	587.3177	0.007038		
10:16	13	N19	385.9683	0.005679		
10:18	14	N21	1036.172	0.010067		
10:20	15	N23	3259.433	0.025072		
10:22	16	N25	4244.693	0.031721		
10:24	17	N27	4266.092	0.031866		
10:26	18	N29	4227.389	0.031604		
10:28	19	N31	4759.817	0.035198		
10:30	0	BLANK	-33.0098	0.002852		
10:32	0	BLANK	-51.68384	0.002726		
10:34	5	CCV	185622.8	1.255806		-1.27%
10:36	0	READ B/L	0	0.003074	BL	
10:38	20	N30 DUP.	4984.543	0.036714		
10:40	21	N33	767.976	0.008257		
10:42	22	N35	489.3773	0.006377		
10:44	23	N37	139.1339	0.004013		
10:46	24	N36 DUP	184.5616	0.00432		
10:48	25	N39	783.6155	0.008363		
10:50	26	N41	468.6201	0.006237		
10:52	27	N43	851.6001	0.008822		
10:54	28	N45	503.3187	0.006471		
10:56	29	N47	731.2665	0.00801		
10:58	0	BLANK	-75.85615	0.002563		
11:00	0	BLANK	-67.7113	0.002618		
11:02	5	CCV	186578.8	1.262258		-1.79%

11:04	0	READ B/L	0	0.003074 BL	
11:06	30	N49	124.5535	0.003915	
11:08	31	N51	234.4922	0.004657	
11:10	32	N53	545.1761	0.006754	
11:12	33	N55	380.3551	0.005641	
11:14	34	N57	112.7701	0.003836	
11:16	35	N56 DUP	573.6205	0.006946	
11:18	36	N59	139.6695	0.004017	
11:20	37	N61	222.7254	0.004578	
11:22	38	N63	996.1394	0.009797	
11:24	39	N65	226.8935	0.004606	
11:26	0	BLANK	-77.04749	0.002555	
11:28	0	BLANK	-94.0784	0.00244	
11:30	6	CCV	186058.5	1.258746	-1.51%
11:32	0	READ B/L	0	0.003074 BL	
11:34	40	N67	1671.229	0.014353	
11:36	41	N69	899.3674	0.009144	
11:38	42	N71	820.9323	0.008615	
11:40	43	N73	515.2735	0.006552	
11:42	44	N75	152.7015	0.004105	
11:44	45	N77	24.1607	0.003238	
11:46	46	N76 DUP	235.7172	0.004665	
11:48	47	N79	159.6449	0.004152	
11:50	48	N81	160.0976	0.004155	
11:52	49	N83	235.8856	0.004666	
11:54	0	BLANK	-77.10915	0.002554	
11:56	0	BLANK	-99.00578	0.002406	
11:58	6	CCV	183450.1	1.241143	-0.09%
12:00	0	READ B/L	0	0.003074 BL	
12:02	50	N85	444.5763	0.006075	
12:04	51	N87	172.9641	0.004242	
12:06	52	N89	180.9049	0.004295	
12:08	53	N91	301.4262	0.005109	
12:10	54	N101	1361.477	0.012263	
12:12	55	N99	510.1956	0.006518	
12:14	56	N95	203.8607	0.00445	
12:16	57	N93	218.8841	0.004552	
12:18	58	N97	435.1957	0.006012	
12:20	59	N96 DUP	430.4652	0.00598	
12:22	0	BLANK	-63.28812	0.002647	
12:24	0	BLANK	-67.49094	0.002619	
12:26	7	CCV	185974.5	1.25818	-1.47%
12:28	0	READ B/L	0	0.003074 BL	
12:30	60	N103	739.4755	0.008065	
12:32	61	N105	370.4474	0.005575	
12:34	62	N107	135.5311	0.003989	
12:36	63	N109	159.4541	0.004151	
12:38	64	N111	184.6846	0.004321	
12:40	65	N113	723.711	0.007959	

12:42	66	N115	276.9799	0.004944		
12:44	67	N117	88.52283	0.003672		
12:46	68	N116 DUP	181.1767	0.004297		
12:48	69	N119	133.9318	0.003978		
12:50	0	BLANK	-69.0347	0.002609		
12:52	0	BLANK	-68.4446	0.002613		
12:54	7	CCV	183394.8	1.24077		-0.06%
12:56	0	READ B/L	0	0.003074	BL	
12:58	70	N121	184.1198	0.004317		

Total Phosphate Event #1
Run Results Report
Results: A:\EVNT1&2T.RST
Results completed: 15:07 September 26, 2000.
Operator: MITCH

TOTAL PHOSPHATE

Time	Cup	Name	Height	Calc.	Flags	
12:23	0	Carryover	99.29343	0.025919		
12:25	0	Carryover	18.9302	0.024347		
12:27	0	Baseline	0	0.023977	BL	
12:29	0	Cal 0	-27.07494	0.023447		
12:31	1	Cal 1	4850.708	0.118864		
12:33	2	Cal 2	60268.7	1.202925		
12:35	3	Cal 3	102334	2.025787		
12:37	0	BLANK	-22.1444	0.023544		
12:39	0	BLANK	-31.77597	0.023355		
12:41	4	ICV	70858.35	1.410075		6.00%
12:43	0	READ B/L	1.91E-06	0.023977	BL	
12:45	8	P13	1235.926	0.048153		
12:47	9	P15	1182.568	0.04711		
12:49	10	P17	556.0339	0.034854		
12:51	11	P19	960.4337	0.042764		
12:53	12	P21	2387.96	0.070689		
12:55	13	P23	922.6324	0.042025		
12:57	14	P25	919.8267	0.04197		
12:59	15	P27	912.8945	0.041834		
13:01	16	P29	1075.764	0.04502		
13:03	17	P31	692.7634	0.037528		
13:05	0	BLANK	-86.12939	0.022292		
13:07	0	BLANK	-108.5279	0.021854		
13:09	5	CCV	60047.68	1.198601		3.34%
13:11	0	READ B/L	0	0.023977	BL	
13:13	18	P30 DUP	1315.317	0.049706		
13:15	19	P35	499.9631	0.033757		
13:17	20	P37	2262.641	0.068238		
13:19	21	P36 DUP	1222.368	0.047888		
13:21	22	P39	1825.733	0.059691		
13:23	23	P41	1780.108	0.058798		
13:25	24	P43	1225.904	0.047957		
13:27	25	P45	976.7578	0.043084		
13:29	26	P47	1001.524	0.043568		
13:31	27	P49	717.2662	0.038008		
13:33	0	BLANK	-114.5387	0.021736		
13:35	0	BLANK	-131.3722	0.021407		
13:37	5	CCV	58738.04	1.172983		5.40%
13:39	0	READ B/L	0	0.023977	BL	
13:41	28	P51	726.3535	0.038185		

13:43	29	P53	1192.856	0.047311	
13:45	30	P55	502.442	0.033805	
13:47	31	P57	928.9414	0.042148	
13:49	32	P56 DUP	7494.983	0.17059	
13:51	33	P59	452.4023	0.032827	
13:53	34	P61	2404.929	0.071021	
13:55	35	P63	2824.031	0.079219	
13:57	36	P65	1272.944	0.048878	
13:59	37	P67	2457.495	0.072049	
14:01	0	BLANK	-98.07195	0.022058	
14:03	0	BLANK	-119.0222	0.021649	
14:05	5	CCV	58132.8	1.161143	6.36%
14:07	0	READ B/L	0	0.023977 BL	
14:09	38	P69	1048.178	0.044481	
14:11	39	P71	1357.795	0.050537	
14:13	40	P73	1035.916	0.044241	
14:15	41	P75	749.2618	0.038634	
14:17	42	P77	1823.163	0.059641	
14:19	43	P76 DUP	1371.178	0.050799	
14:21	44	P79	813.4725	0.03989	
14:23	45	P81	409.5955	0.031989	
14:25	46	P83	693.0684	0.037534	
14:27	47	P85	938.1823	0.042329	
14:29	0	BLANK	-108.7902	0.021849	
14:31	0	BLANK	-112.5846	0.021775	
14:33	5	CCV	58570.41	1.169704	5.67%
14:35	0	READ B/L	7.63E-06	0.023977 BL	
14:37	48	P87	438.6432	0.032557	
14:39	49	P89	833.812	0.040287	
14:41	50	P91	394.046	0.031685	
14:43	51	P101	574.2648	0.03521	
14:45	52	P99	901.8271	0.041618	
14:47	53	P95	1919.171	0.061519	
14:49	54	P93	1674.225	0.056727	
14:51	55	P96 DUP	1096.179	0.04542	
14:53	56	P103	534.4223	0.034431	
14:55	57	P105	1345.9	0.050305	
14:57	0	BLANK	-120.7057	0.021616	
14:59	0	BLANK	-128.9952	0.021453	
15:01	5	CCV	57083.97	1.140627	8.01%
15:03	0	READ B/L	-7.63E-06	0.023977 BL	
15:44	58	P107	1100.142	0.05066	
15:46	59	P109	1556.56	0.059927	
15:48	60	P111	1565.42	0.060107	
15:50	61	P113	1242.111	0.053543	
15:52	62	P115	1072.238	0.050093	
15:54	63	P117	1511.562	0.059014	
15:56	64	P116 DUP	299.1033	0.034395	
15:58	65	P119	2764.336	0.084451	

16:00	66	P121	288.8591	0.034187	
16:02	67	P223	6575.874	0.161844	
16:04	0	BLANK	-157.8556	0.025116	
16:06	0	BLANK	-145.9809	0.025357	
16:08	5	CCV	54005	1.124887	9.28%
16:10	0	READ B/L	0	0.028322 BL	

Organics

Event 1

					Dissolved			Total			Particulate			Percent Carbon					
Sample_ID	Rep	Cycle	Station	Time Collected	mgC/L	averag	stdev	mgC/L	average	stdev	mgC/L	average	stdev	%	average	stdev	total - diss	part - total - diss
FB1	1		field blan	3/17/00 12:00	0.41			0.09			0.02			0.4				
FB2	2																	
FB3	3																	
EqB1	1		Eqp blank	3/17/00 12:00	0.20			0.16			0.19			3.1				
D/TC 0.0	1	1	5	3/16/00 16:30	4.52	4.7894	0.38	4.70	4.89	0.27	2.09	1.97	0.18	6.30	6.05	0.35		
D/TC 0.1	2				5.06			5.08			1.84			5.80				
D/TC 0.2	1	1	4	3/16/00 17:20	5.07	5.0129	0.08	5.77	5.80	0.05	2.25	2.16	0.13	5.20	5.10	0.14		
D/TC 0.3	2				4.95			5.84			2.06			5.00				
D/TC 0.4	1	1	1	3/16/00 18:05	4.14	4.2732	0.19	4.98	4.90	0.12	1.90	1.82	0.11	5.30	5.15	0.21		
D/TC 0.5	2				4.41			4.81			1.74			5.00				
D/TC 0.6	1	1	2	3/16/00 18:25	4.12	4.1367	0.02	4.38	4.48	0.15	1.15	1.20	0.07	6.60	6.25	0.49		
D/TC 0.7	2				4.15			4.59			1.25			5.90				
D/TC 0.8	1	1	3	3/16/00 18:25	4.00	3.8949	0.15	3.49	3.69	0.28	0.94	0.90	0.06	7.60	6.95	0.92		
D/TC 0.9	2				3.79			3.88			0.85			6.30				
D/TC01	1	2	5	3/16/00 23:08	5.17	5.17			3.63		0.92	0.94	0.04	6.20	6.10	0.14		
D/TC02	2							3.63			0.97			6.00				
D/TC03	1	2	4	3/16/00 23:23	5.3	5.3			3.58		1.36	1.25	0.14	3.80	3.60	0.28		
D/TC04	2							3.58			1.15			3.40				
D/TC05	1	2	1	3/16/00 23:50	3.19	3.12	0.10	2.92	2.88	0.06	0.71	0.76	0.08	2.90	3.10	0.28		
D/TC06	2				3.05			2.84			0.82			3.30				
D/TC07	1	2	2	3/17/00 0:14		4.51		5.37	5.26	0.16	2.04	1.66	0.54	5.10	4.75	0.49		
D/TC08	2				4.51			5.14			1.28			4.40				
D/TC09	1	2	3	3/17/00 0:23		lost		5.44	5.74	0.42	2.30	1.95	0.50	5.10	4.75	0.49		
D/TC10	2							6.04			1.60			4.40				
D/TC11	2	3	5	3/17/00 3:36	4.42	4.42		3.41	3.81	0.56	1.05			3.80				
D/TC12	1							4.20			0.81	0.84	0.04	4.50	4.90	0.57		
D/TC13	2	3	4	3/17/00 3:54	4.14	4.37	0.33	3.60	3.59	0.01	0.87			5.30				
D/TC14	1				4.6			3.58						lost				
D/TC15	1	3	3	3/17/00 4:30		4.2242		4.81	4.71	0.15	1.62	1.31	0.45	6.60	5.40	1.70		

D/TC16	2				4.22			4.61			0.99			4.20					
D/TC17	1	3	2	3/17/00 4:50	4.74	4.52	0.31	5.54	5.79	0.35	2.29	2.89	0.85	5.80	7.35	2.19			
D/TC18	2				4.30			6.03			3.49			8.90					
D/TC19	1	3	1	3/17/00 5:05	3.90	3.91	0.02	4.71	4.66	0.07	1.19	1.10	0.12	4.10	3.60	0.71			
D/TC20	2				3.93			4.61			1.01			3.10					
D/TC21	1	4	5	3/17/00 8:03	3.22	3.42	0.28	4.01	4.14	0.18	1.08	0.91	0.24	4.70	3.90	1.13			
D/TC22	2				3.62			4.27			0.74			3.10					
D/TC23	1	4	4	3/17/00 8:24	3.74	3.79	0.08	4.74	4.55	0.27	0.97	0.94	0.05	2.70	2.65	0.07			
D/TC24	2				3.85			4.36			0.90			2.60					
D/TC25	1	4	1	3/17/00 8:56	6.01	5.92	0.12	7.47	7.57	0.15	1.90	2.05	0.22	4.90	5.25	0.49			
D/TC26	2				5.84			7.68			2.21			5.60					
D/TC27	1	4	2	3/17/00 9:17	4.29	4.30	0.02	5.72	5.49	0.32	1.22	1.16	0.09	3.60	3.30	0.42			
D/TC28	2				4.32			5.27			1.09			3.00					
D/TC29	1	4	3	3/17/00 9:35	4.36	4.43	0.10	4.65	5.22	0.81	1.06	1.02	0.06	2.30	2.25	0.07			
D/TC30	2				4.51			5.79			0.98			2.20					
D/TC31	1	5	5	3/17/00 13:50	3.71	3.64	0.10	4.39	4.23	0.21	1.17	1.18	0.01	4.90	4.82	0.12	0.60	0.58	
D/TC32	2				3.56			4.08			1.18			4.73					
D/TC33	1	5	4	3/17/00 14:10	4.19	4.19	0.01	4.97	5.22	0.36	1.52	2.03	0.71	4.23	5.46	1.74	1.04	0.99	
D/TC34	2				4.18			5.47			2.53			6.69					
D/TC35	1	5	3	3/17/00 14:30	4.25	4.10	0.22	6.03	5.79	0.34	2.72	2.63	0.14	6.99	6.68	0.44	1.69	0.94	
D/TC36	2				3.94			5.55			2.53			6.36					
D/TC37	1	5	2	3/17/00 14:50	5.85	5.89	0.06	6.71	7.10	0.55	2.60	2.43	0.24	8.23	7.58	0.92	1.20	1.23	
D/TC38	2				5.93			7.49			2.26			6.93					
D/TC39	1	5	1	3/17/00 15:08	5.41	5.38	0.03	6.88	6.79	0.13	3.49	3.20	0.42	6.91	6.36	0.77	1.40	1.80	
D/TC40	2				5.36			6.69			2.90			5.82					
D/TC41	1	6	1	3/17/00 18:50		#######	#######	5.74	5.85	0.1556	1.93	2.03	0.14	6.64	5.96	0.96	#DIV/0!	#DIV/0!	
D/TC42	2							5.96			2.13			5.28					
D/TC43	1	6	2	3/17/00 19:00		#######	#######	5.54	5.54	#######	1.83	1.68	0.22	4.52	4.24	0.40	#DIV/0!	#DIV/0!	
D/TC44	2							5.15			1.52			3.95					
D/TC45	1	6	3	3/17/00 19:15	4.37	4.45	0.11		5.23	0.12	2.15	2.08	0.09	5.05	4.99	0.08	0.79	1.29	
D/TC46	2				4.52			5.32			2.02			4.93					
D/TC47	1	6	4	3/17/00 19:30	4.05	4.09	0.05	5.19	5.18	0.01	2.04	2.10	0.09	6.99	7.09	0.13	1.10	1.01	
D/TC48	2				4.12			5.18			2.17			7.18					
D/TC49	1	6	5	3/17/00 19:40	3.44	3.44	0.01	3.92	4.13	0.30	1.40	1.53	0.19	5.93	6.29	0.51	0.70	0.83	
D/TC50	2				3.43			4.35			1.66			6.65					

D/TC51	1	7	5	3/17/00 22:20	3.63	3.85	0.30	4.26	4.36	0.15	1.03	1.09	0.08	4.01	4.05	0.07	0.52	0.57
D/TC52	2				4.06			4.47			1.15			4.10				
D/TC53	1	7	4	3/17/00 22:35	4.10	4.02	0.12	5.22	5.15	0.09		1.95	####	4.96	4.95	0.02	1.13	0.82
D/TC54	2				3.94			5.09			1.95			4.93				
D/TC55	1	7	3	3/17/00 22:50	4.50	4.58	0.11	5.79	5.84	0.08	1.78	1.78	####	3.76	3.83	0.10	1.27	0.51
D/TC56	2				4.66			5.90						3.90				
D/TC57	1	7	2	3/17/00 23:05	5.17	5.19	0.03	6.40	6.52	0.16	1.98	1.79	0.26	4.02	3.94	0.11	1.33	0.47
D/TC58	2				5.21			6.63			1.61			3.86				
D/TC59	1	7	1	3/17/00 23:22	4.61	4.78	0.24	5.23	5.33	0.14	1.54	1.49	0.07	3.52	3.56	0.05	0.55	0.94
D/TC60	2				4.95			5.43			1.44			3.60				
D/TC61	1	8	5	3/18/00 2:08	0.16	3.42		0.13	3.47			1.18	####	lost	4.15	####	0.05	1.13
D/TC62	2				3.42			3.47			1.18			4.15				
D/TC63	1	8	4	3/18/00 2:30	3.70	3.80	0.14	4.43	4.37	0.08	1.73	1.67	0.08	4.34	4.27	0.11	0.58	1.10
D/TC64	2				3.89			4.31			1.62			4.19				
D/TC65	1	8	3	3/18/00 2:45	4.84	4.78	0.08	5.60	5.52	0.12	2.15	2.23	0.12	3.97	4.19	0.32	0.74	1.50
D/TC66	2				4.72			5.43			2.32			4.42				
D/TC67	1	8	2	3/18/00 3:50	5.07	5.11	0.06	6.14	6.29	0.22	1.87	1.84	0.06	4.46	4.43	0.04	1.19	0.65
D/TC68	2			3/18/00 3:50	5.15			6.45			1.80			4.40				
D/TC69	1	8	1	3/18/00 3:55	5.05	5.09	0.06	6.27	5.58	0.98	1.01	1.55	0.76	3.24	3.51	0.39	0.48	1.07
D/TC70	2			3/18/00 3:55	5.14			4.88			2.08			3.79				
D/TC71	1	9	5	3/18/00 6:45	3.64	3.63	0.02	3.14	3.29	0.21	0.83	1.18	0.50	4.76	6.92	3.05	-0.34	1.52
D/TC72	2				3.61			3.43			1.53			9.08				
D/TC73	1	9	4	3/18/00 7:00	4.42	4.54	0.16	3.92	3.93	0.01	2.64	2.41	0.33	6.91	6.50	0.58	-0.61	3.02
D/TC74	2				4.65			3.93			2.17			6.10				
D/TC75	1	9	2	3/18/00 7:20	4.88	5.02	0.20	4.8	4.86	0.08	3.56	2.47	1.55	8.74	6.55	3.09	-0.16	2.63
D/TC76	2				5.16			4.92			1.37			4.36				
D/TC77	1	9	1	3/18/00 7:40	5.13	5.25	0.17	5.16	5.15	0.02	2.15	1.95	0.29	8.27	7.77	0.71	-0.11	2.05
D/TC78	2				5.37			5.13			1.75			7.27				
D/TC79	1	9	3	3/18/00 8:00	4.4	4.30	0.15	4.4	4.51	0.16	1.96	2.24	0.39	7.54	8.60	1.50	0.22	2.02
D/TC80	2				4.19			4.62			2.51			9.66				
D/TC81	1	10	5	3/18/00 10:30	4.01	3.90	0.16	3.51	3.76	0.35	1.66	1.83	0.25	###	14.92	1.59	-0.14	1.97
D/TC82	2				3.78			4.01			2.01			###				
D/TC83	1	10	4	3/18/00 10:36	3.92	3.92	0.00	4.14	4.12	0.04	1.85	2.33	0.09	8.39	10.06	2.36	0.20	2.14
D/TC84	2				3.92			4.09			2.82			###				
D/TC85	1	10	3	3/18/00 10:57	4.99	4.99	0.01	5.96	6.27	0.43	2.09	2.42	0.47	6.06	6.61	0.78	1.28	1.14

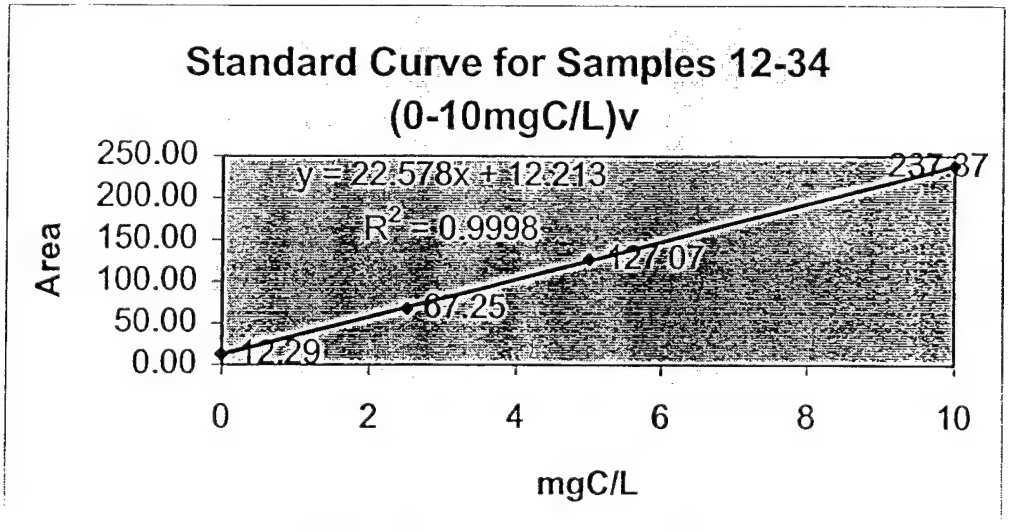
D/TC86	2				4.98			6.57			2.76			7.17				
D/TC87	1	10	2	3/18/00 11:13	6.37	6.27	0.14	8.13	8.63	0.70	3.45	3.61	0.22	7.04	7.32	0.40	2.36	1.25
D/TC88	2				6.17			9.12			3.77			7.61				
D/TC89	1	10	1	3/18/00 11:30	6.16	6.16	######	5.63	5.63	0.01	2.34	1.90	0.63	7.32	6.46	1.23	-0.54	2.43
D/TC90	2							5.62			1.45			5.59				
D/TC91	1	11	5	3/18/00 2:15	4.35	4.24	0.16	4.73	4.73	######	1.61	1.78	0.24	###	11.52	1.56	0.50	1.29
D/TC92	2				4.12						1.96			###				
D/TC93	1	11	4	3/18/00 14:30	4.71	4.71	######	5.11	5.39	0.39	2.06	2.13	0.10	9.37	9.68	0.45	0.68	1.46
D/TC94	2							5.66			2.20			###				
D/TC95	1	11	3	3/18/00 14:40		4.83	######	5.97	6.91	1.33	2.17	2.58	0.58	6.89	8.35	2.06	2.08	0.50
D/TC96	2				4.83			7.85			2.99			9.81				
D/TC97	1	11	2	3/18/00 14:50	5.59	5.71	0.16	7.02	6.52	0.71	4.52	3.92	0.85	8.14	6.95	1.68	0.82	3.10
D/TC98	2				5.82			6.02			3.31			5.76				
D/TC99	1	11	1	3/18/00 15:10		6.96	######	7.3	6.68	0.88	1.77	2.03	0.37	8.86	9.52	0.93	-0.28	2.31
D/TC100	2				6.96			6.06			2.29			###				

TOC Sample Data

Note: Make sure to update slope and y intercept on standard plots sheet

Event 1

Analysis ID	Sample ID	File	Peak 1	Peak 2	Peak 1 TOC (mgC/L)	Peak 2 TOC (mgC/L)	Average TOC mgC/L	Std Dev mgC/L
12	DCFB (3/18	040600E1ww12	32	67.6	0.88	2.45	1.66	1.11
13	DC92	040600E1ww13	105.2	105.1	4.12	4.11	4.12	0.00
14	DC85	040600E1ww14	125.7	124.2	5.03	4.96	4.99	0.05
15	DC89	040600E1ww15	150.5	152.3	6.12	6.20	6.16	0.06
16	DC87	040600E1ww16	150.5	161.4	6.12	6.61	6.37	0.34
17	DC91	040600E1ww17	111.7	109.1	4.41	4.29	4.35	0.08
18	DC90							
19	DC88	040600E1ww19	157.8	145.4	6.45	5.90	6.17	0.39
20	TC97	040600E1ww20	145.8	195.4	5.92	8.11	7.02	1.55
21	TC99	040600E1ww21	174.8	179.2	7.20	7.40	7.30	0.14
22	TC90	040600E1ww22	141.8	136.5	5.74	5.50	5.62	0.17
23	TC94	040600E1ww23	133.6	146.5	5.38	5.95	5.66	0.40
24	TC88	040600E1ww24	217.6	218.5	9.10	9.14	9.12	0.03
25	TC96	040600E1ww25	184.5	194.6	7.63	8.08	7.85	0.32
26	TC87	040600E1ww26	197.3	194.1	8.20	8.06	8.13	0.10
27	TC89	040600E1ww27	138.2	140.4	5.58	5.68	5.63	0.07
28	TC100	040600E1ww28	146.2	151.7	5.93	6.18	6.06	0.17
29	TC92	040600E1ww29	60.9	57.6	2.16	2.01	2.08	0.10
30	TC85	040600E1ww30	145.6	147.9	5.91	6.01	5.96	0.07
31	TC86	040600E1ww31	158.2	163.1	6.47	6.68	6.57	0.15
32	TC93	040600E1ww32	126.7	128.4	5.07	5.15	5.11	0.05
33	TC98	040600E1ww33	167.8	128.4	6.89	5.15	6.02	1.23
34	TC95	040600E1ww34	146.3	147.7	5.94	6.00	5.97	0.04



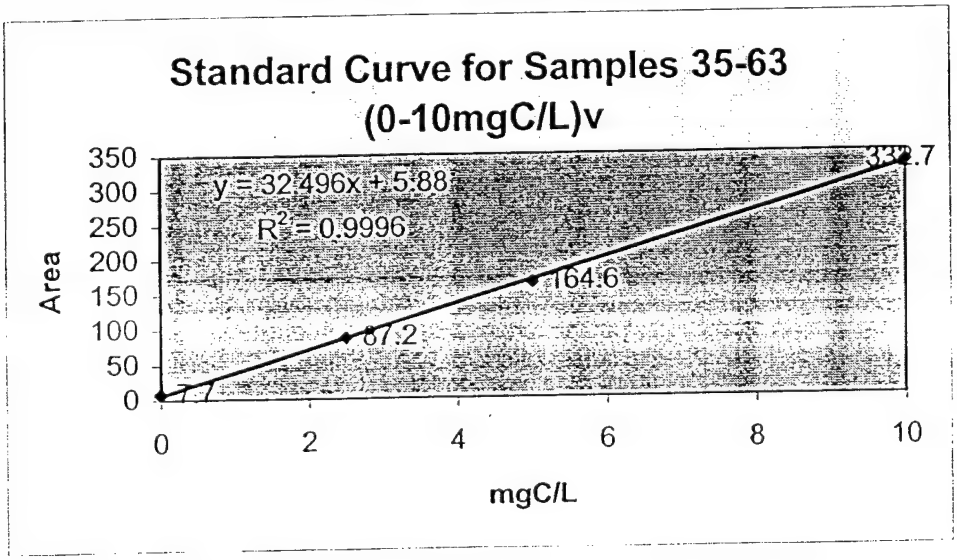
Yintercept= 12.213 Slope= 22.578

TOC Sample Data

Note: Make sure to update slope and y intercept on standard plots sheet

Event 1

Analysis ID	Sample ID	File	Peak 1	Peak 2	Peak 1 TOC (mgC/L)	Peak 2 TOC (mgC/L)	Average TOC mgC/L	Std Dev mgC/L
35	TC 84	040700E1ww01	135	142.6	3.97	4.21	4.09	0.17
36	TC 83	040700E1ww02	134.6	146	3.96	4.31	4.14	0.25
37	TC 82	040700E1ww03	126.9	145.4	3.72	4.29	4.01	0.40
38	TC 81	040700E1ww04	117.3	122.6	3.43	3.59	3.51	0.12
39	TC 80	040700E1ww05	143.1	168.8	4.22	5.01	4.62	0.56
40	TC 79	040700E1ww06	153.6	143.8	4.55	4.24	4.40	0.21
41	TC 78	040700E1ww07	165.4	179.8	4.91	5.35	5.13	0.31
42	TC 77	040700E1ww08	169.8	177.5	5.04	5.28	5.16	0.17
43	TC 76	040700E1ww09	160.4	170.9	4.76	5.08	4.92	0.23
44	TC 75	040700E1ww10	159.8	163.8	4.74	4.86	4.80	0.09
45	TC74	040700E1ww11	126.3	140.8	3.71	4.15	3.93	0.32
46	TC73	040700E1ww12	124.4	141.9	3.65	4.19	3.92	0.38
47	TC72	040700E1ww13	109.4	125	3.19	3.67	3.43	0.34
48	TC71	040700E1ww14	103.9	111.7	3.02	3.26	3.14	0.17
49	TC70	040700E1ww15	161.3	167.6	4.78	4.98	4.88	0.14
50	DC84	040700E1ww16	134.2	132.5	3.95	3.90	3.92	0.04
51	DC83	040700E1ww17	132.6	133.9	3.90	3.94	3.92	0.03
52	DC82	040700E1ww18	136.1	121.3	4.01	3.55	3.78	0.32
53	DC81	040700E1ww19	136.6	136	4.02	4.00	4.01	0.01
54	DC80	040700E1ww20	140.7	143.1	4.15	4.22	4.19	0.05
55	DC79	040700E1ww21	143.8	153.7	4.24	4.55	4.40	0.22
56	DC78	040700E1ww22	177.8	182.9	5.29	5.45	5.37	0.11
57	DC77	040700E1ww23	171.9	173	5.11	5.14	5.13	0.02
58	DC76	040700E1ww24	173.9	173.2	5.17	5.15	5.16	0.02
59	DC75	040700E1ww25	162.4	166.3	4.82	4.94	4.88	0.08
60	DC74	040700E1ww26	150.3	163.9	4.44	4.86	4.65	0.30
61	DC73	040700E1ww27	151.7	147.2	4.49	4.35	4.42	0.10
62	DC72	040700E1ww28	117.6	128.8	3.44	3.78	3.61	0.24
63	DC71	040700E1ww29	125.9	122.3	3.69	3.58	3.64	0.08



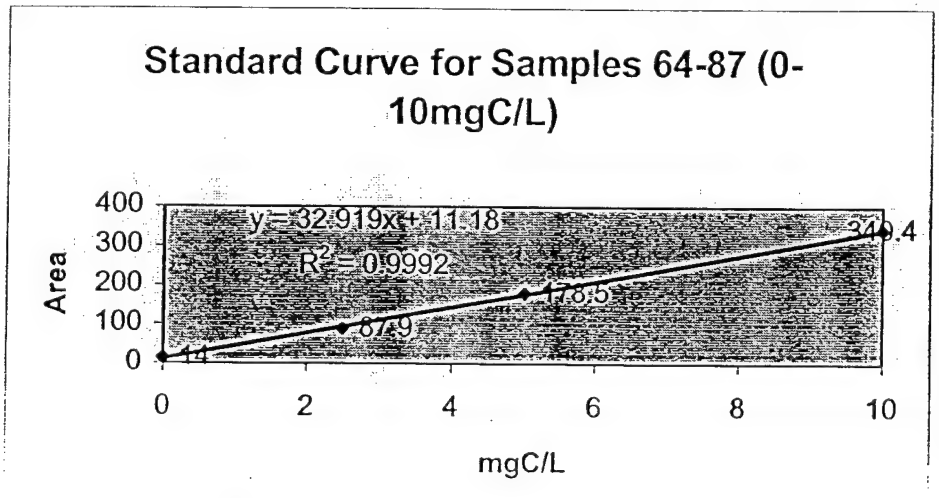
Yintercept= 5.88 Slope= 32.496

TOC Sample Data

Note: Make sure to update slope and y intercept on standard plots sheet

Event 1

Analysis ID	Sample ID	File	Peak 1	Peak 2	Peak 1 TOC (mgC/L)	Peak 2 TOC (mgC/L)	Average TOC mgC/L	Std Dev mgC/L	Comments
64	TC45	041100samp09	191.1	198.4	5.47	5.69	5.58	0.16	
65	TC46	041100samp10	186	186.6	5.31	5.33	5.32	0.01	
66	TC47	041100samp11	183.4	180.4	5.23	5.14	5.19	0.06	
67	TC48	041100samp12	182.7	180.6	5.21	5.15	5.18	0.05	
68	TC49	041100samp13	131.8	148.8	3.66	4.18	3.92	0.37	
69	TC50	041100samp14	151.7	156.9	4.27	4.43	4.35	0.11	
70	TC51	041100samp15	148.8	154	4.18	4.34	4.26	0.11	
71	TC52	041100samp16	157.4	159.2	4.44	4.50	4.47	0.04	
72	TC53	041100samp17	186.1	179.9	5.31	5.13	5.22	0.13	
73	TC54	041100samp18	173.4	184.1	4.93	5.25	5.09	0.23	
74	TC55	041100samp19	202.7	200.7	5.82	5.76	5.79	0.04	
75	TC56	041100samp20	205.9	204.9	5.92	5.88	5.90	0.02	
76	TC57	041100samp21	221	223	6.37	6.43	6.40	0.04	
77	TC58	041100samp22	229	229.8	6.62	6.64	6.63	0.02	
78	TC59	041100samp23	182.7	184.2	5.21	5.26	5.23	0.03	
79	TC60	041100samp24	188.4	191.6	5.38	5.48	5.43	0.07	
80	TC61	041100samp25	16.2	14.9	0.15	0.11	0.13	0.03	
81	TC62	041100samp26	124.7	126.4	3.45	3.50	3.47	0.04	
82	TC63	041100samp27	155.4	158.9	4.38	4.49	4.43	0.08	
83	TC64	041100samp28	163.3	143.1	4.62	4.01	4.31	0.43	
84	TC65	041100samp29	190.6	200.7	5.45	5.76	5.60	0.22	
85	TC66	041100samp30	183.5	196.4	5.23	5.63	5.43	0.28	
86	TC67	041100samp31	210.1	216.5	6.04	6.24	6.14	0.14	
87	TC68	041100samp32	223.6	166.3	6.45	4.71	6.45	1.23	



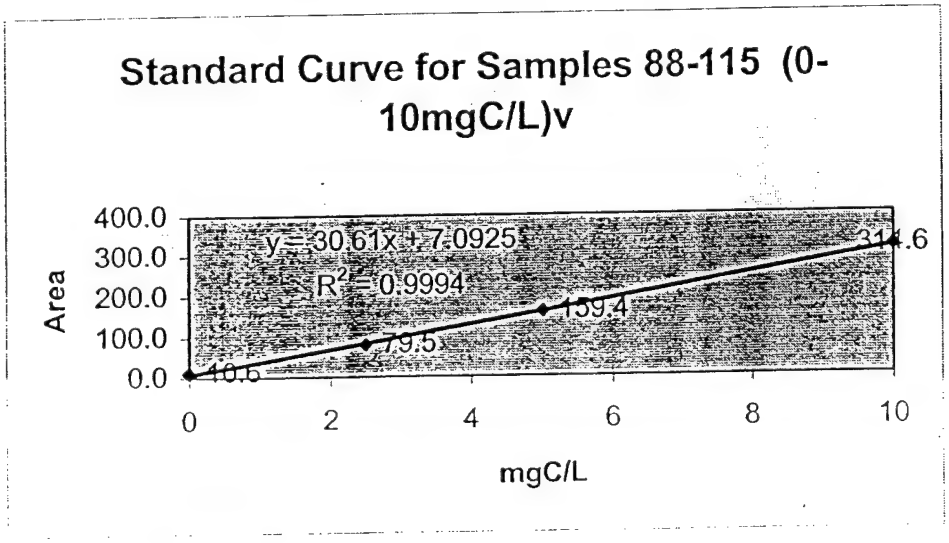
Yintercept= 11.18 Slope= 32.919

TOC Sample Data

Note: Make sure to update slope and y intercept on standard plots sheet

Event 1

Analysis ID	Sample ID	File	Peak 1	Peak 2	Peak 1 TOC (mgC/L)	Peak 2 TOC (mgC/L)	Average TOC mgC/L	Std Dev mgC/L	Comments
88	TC69	041100samp41	196	202	6.17	6.37	6.27	0.14	
89	DC45	041100samp42	141	140.5	4.37	4.36	4.37	0.01	
90	DC46	041100samp43	145.2	146	4.51	4.54	4.52	0.02	
91	DC47	041100samp44	131	131.1	4.05	4.05	4.05	0.00	
92	DC48	041100samp45	133.2	133.4	4.12	4.13	4.12	0.00	
93	DC49	041100samp46	113.2	111.7	3.47	3.42	3.44	0.03	
94	DC50	041100samp47	112.2	111.9	3.43	3.42	3.43	0.01	
95	DC51	041100samp48	117.2	119.4	3.60	3.67	3.63	0.05	
96	DC52	041100samp49	130.2	132.8	4.02	4.11	4.06	0.06	
97	DC53	041100samp50	132.1	133.3	4.08	4.12	4.10	0.03	
98	DC54	041100samp51	128.3	127	3.96	3.92	3.94	0.03	
99	DC55	041100samp52	143.2	146.3	4.45	4.55	4.50	0.07	
100	DC56	041100samp53	145.7	153.6	4.53	4.79	4.66	0.18	
101	DC57	041100samp54	165.7	165	5.18	5.16	5.17	0.02	
102	DC58	041100samp55	164.9	168	5.16	5.26	5.21	0.07	
103	DC59	041100samp56	147	149.5	4.57	4.65	4.61	0.06	
104	DC60	041100samp57	166.9	150.1	5.22	4.67	4.95	0.39	
105	DC61	041100samp58	12.8	11	0.19	0.13	0.16	0.04	erroneous
106	DC62	041100samp59	112.1	111.7	3.43	3.42	3.42	0.01	
107	DC63	041100samp60	120.5	120	3.70	3.69	3.70	0.01	
108	DC64	041100samp61	125.2	127.4	3.86	3.93	3.89	0.05	
109	DC65	041100samp62	155.8	154.7	4.86	4.82	4.84	0.03	
110	DC66	041100samp63	150.3	153	4.68	4.77	4.72	0.06	
111	DC67	041100samp64	157.1	167.3	4.90	5.23	5.07	0.24	
112	DC68	041100samp65	165	164.3	5.16	5.14	5.15	0.02	
113	DC69	041100samp66	160.3	163	5.01	5.09	5.05	0.06	
114	DC70	041100samp67	163.1	165.8	5.10	5.18	5.14	0.06	
115	DC44	041100samp68	145.5	145	4.52	4.51	4.51	0.01	



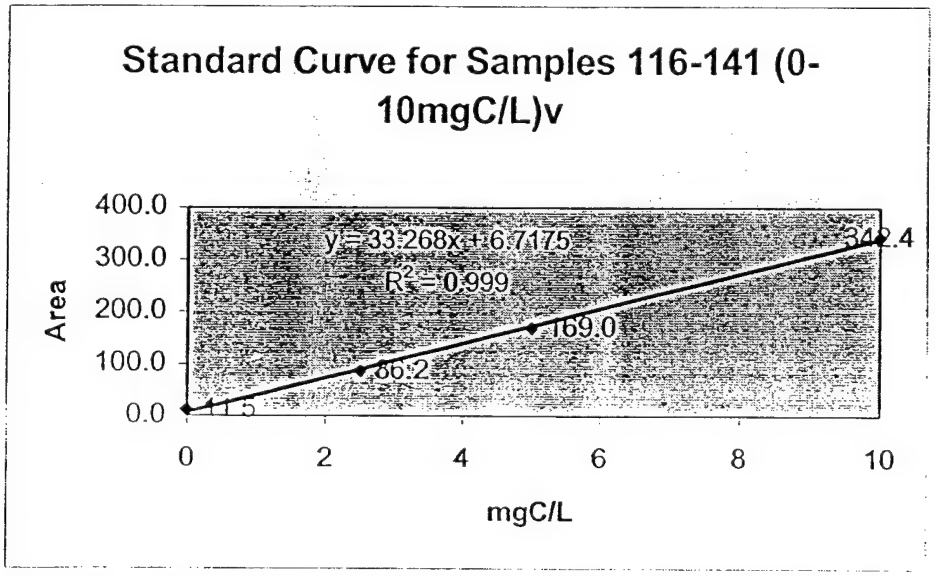
Yintercept= 7.0925 Slope= 30.61

TOC Sample Data

Note: Make sure to update slope and y intercept on standard plots sheet

Event 1

Analysis ID	Sample ID	File	Peak 1	Peak 2	Peak 1 TOC (mgC/L)	Peak 2 TOC (mgC/L)	Average TOC mgC/L	Std Dev mgC/L	Comments
116	TC15	041200samp09	162.2	169.4	4.67	4.89	4.78	0.15	
117	TC16	041200samp10	157	160.8	4.52	4.63	4.57	0.08	
118	TC17	041200samp11	184.2	196	5.33	5.69	5.51	0.25	
119	TC18	041200samp12	204.1	209.1	5.93	6.08	6.01	0.11	
120	TC19	041200samp13	163.8	160.9	4.72	4.63	4.68	0.06	
121	TC20	041200samp14	157.3	160.9	4.53	4.63	4.58	0.08	
122	TC21	041200samp15	135.9	141.7	3.88	4.06	3.97	0.12	
123	TC22	041200samp16	149.6	145.4	4.29	4.17	4.23	0.09	
124	TC23	041200samp18	167.7	159.1	4.84	4.58	4.71	0.18	
125	TC24	041200samp19	149.8	151.7	4.30	4.36	4.33	0.04	
126	TC25	041200samp20	253.9	255.1	7.43	7.47	7.45	0.03	
127	TC26	041200samp21	261.2	262.1	7.65	7.68	7.66	0.02	
128	TC27	041200samp22	194.1	198	5.63	5.75	5.69	0.08	
129	TC28	041200samp23	183.7	178.1	5.32	5.15	5.24	0.12	
130	TC29	041200samp24	159.4	161.3	4.59	4.65	4.62	0.04	
131	TC30	041200samp25	163.2	233.8	4.70	6.83	5.76	1.50	
132	TC31	041200samp26	152.2	150.7	4.37	4.33	4.35	0.03	
133	TC32	041200samp27	142.1	140.5	4.07	4.02	4.05	0.03	
134	TC33	041200samp28	170	171.9	4.91	4.97	4.94	0.04	
135	TC34	041200samp29	185.4	190.3	5.37	5.52	5.44	0.10	
136	TC35	041200samp30	200.5	212.1	5.82	6.17	6.00	0.25	
137	TC36	041200samp31	185.4	195.4	5.37	5.67	5.52	0.21	
138	TC37	041200samp32	226.6	231.5	6.61	6.76	6.68	0.10	
139	TC38	041200samp33	258.1	252.2	7.56	7.38	7.47	0.13	
140	TC39	041200samp34	229	240.8	6.68	7.04	6.86	0.25	
141	TC40	041200samp35	226.4	230.7	6.60	6.73	6.67	0.09	



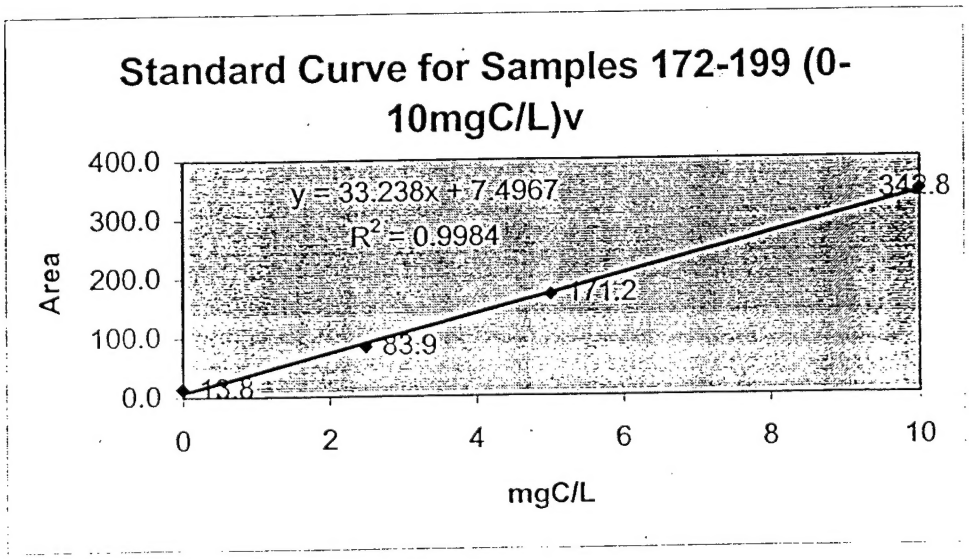
Yintercept= 6.7175 Slope= 33.268

TOC Sample Data

Note: Make sure to update slope and y intercept on standard plots sheet

Event 1

Analysis ID	Sample ID	File	Peak 1	Peak 2	Peak 1 TOC (mgC/L)	Peak 2 TOC (mgC/L)	Average TOC mgC/L	Std Dev mgC/L	Comments
172	TC05	041200samp82	104.3	104.5	2.91	2.92	2.92	0.00	
173	TC06	041200samp83	101.1	103	2.82	2.87	2.84	0.04	
174	TC08	041200samp84	177.7	179.2	5.12	5.17	5.14	0.03	
175	TC09	041200samp85	187	189.8	5.40	5.48	5.44	0.06	
176	TC11	041200samp86	120.3	121.1	3.39	3.42	3.41	0.02	
177	TC13	041200samp87	127.1	127.3	3.60	3.60	3.60	0.00	
178	TC14	041200samp88	125.6	127.6	3.55	3.61	3.58	0.04	
179	TC41	041200samp89	198	198.6	5.73	5.75	5.74	0.01	
180	TC42	041200samp90	245.8	205.7	7.17	5.96	5.96		
181	TC43	041200samp91	217.1	207.9	6.31	6.03	6.17	0.20	
182	TC43	041200samp92	189.7	193.5	5.48	5.60	5.54	0.08	
183	TC44	041200samp93	178.1	179.2	5.13	5.17	5.15	0.02	
184	TC2	041200samp94	126.7	129.4	3.59	3.67	3.63	0.06	
185	TC7	041200samp95	186.9	184.9	5.40	5.34	5.37	0.04	
186	TC10	041200samp96	208.1	249.2	6.04	7.27	6.04		
187	TC12	041200samp97	147	189.9	4.20	5.49	4.20		
188	DC5	041200samp98	121.4	105.5	3.43	2.95	3.19	0.34	
189	DC6	041200samp99	109.1	108.5	3.06	3.04	3.05	0.01	
190	DC8	041200samp10	151	164	4.32	4.71	4.51	0.28	
191	DC11	041200samp10	148.6	160.3	4.25	4.60	4.42	0.25	
192	DC13	041200samp10	145.5	144.8	4.15	4.13	4.14	0.01	
193	DC14	041200samp10	158.3	162.7	4.54	4.67	4.60	0.09	
194	DC1	041200samp10	187.4	171	5.41	4.92	5.17	0.35	
195	DC2	041200samp10	296.7	183.7	8.70	5.30	5.30		
196	DC10	041200samp10	197.4	207.7	5.71	6.02	5.87	0.22	
197	DC12	041200samp10	164.9	106.8	4.74	2.99	3.86	1.24	
198	DC42	041200samp10	270.8	261.3	7.92	7.64	7.78	0.20	
199	DC43	041200samp10	185	195.9	5.34	5.67	5.50	0.23	



Yintercept= 7.4967 Slope= 33.238

CHESAPEAKE ANALYTICAL LABORATORY, INC.
3430 Rockefeller Court - Waldorf, MD 20602
Phone: (301) 932-4775
FAX: 301-932-4857

Environmental Quality Sciences
U. S. Naval Research Laboratory
Code 6115
4555 Overlook Avenue, S. W.
Washington, D. C. 20375
Attention: John Pohlman

REPORT OF ANALYSIS
July 7, 2000

RECEIVED: 06/29/00 @ 1550 SOIL - 11 Analyzed: TKN's

Analytical Results, mg/L:

Sample ID	Results
K 65	0.72
K 226	0.71
K 84	1.07
K 221	0.77
K 81	1.18
K 228	0.88
K 227	0.82
K 146	0.98
K 222	0.95

Analytical Information:

Parameter	Method	Analysis Date	Analyst
TKN	351.2	07/05/00	CM/DB

Reviewed and Approved by:

Daniel J. Brumsted
Laboratory Director

Total Kjeldahl Nitrogen (K)

EVENT 1 Date

Count	Cycle	Station	Bottle ID	Time Collected	Replicate	coll_by	Time stored	Comments
1	1	5	K01		1			0.54
2		4	K07		1			0.76
3		1	K03		1			0.59
4		2	K10		1			0.86
5		3	*K04*		1			0.82
6		3	*K06*		2			0.86
7	2	5	K17'		1			0.80
8		4	K16'		1			0.86
9		1	K18'		1			<0.50 (0.32)
10		2	K20'		1			0.59
11		3	K13'		1			0.92
12	3	5	K28		1			0.93
13		4	K26		1			0.81
14		3	*K23*		1			0.84
15		3	*K25*		2			0.53
16		2	K24		1			0.50
17		1	K21		1			1.06
18	4	5	K35		1			0.87
19		4	K39		1			0.73
20		1	K36		1			0.72
21		2	K34		1			0.65
22		3	K40		1			1.04
23	5	5	K48		1			0.88
24		4	K47		1			0.94
25		3	*K46*		1			0.84
26		3	*K50*		2			0.81
27		2	K43		1			0.76
28		1	K41		1			0.66
29	6	1	K55		1			0.67
30		2	K52		1			0.77
31		3	K51		1			0.88
32		4	K53		1			0.98
33		5	K54		1			0.86
34	7	5	K62		1			0.92
35		4	K69		1			1.01
36		3	*K68*		2			0.81
37		3	*K70*		1			0.80
38		2	K67		1			missing
39		1	K63		1			<0.50 (0.38)
40	8	5	K73		1			0.76
41		4	K76		1			0.78
42		3	K79		1			0.94
43		2	K80		1			<0.50 (0.48)
44		1	K74		1			<0.50 (0.39)
45	9	5	K85		1			<0.50 (0.44)
46		4	K89		1			0.68

47		2	K81		1				
48		2	K88					0.60	
49		1	K83		1			<0.50	(0.48)
50		3	K89		1			dup	
51	10	5	K94		1			0.71	
52		4	K97		1			0.87	
53		3	K92		1			0.99	
54		2	K96		1			0.96	
55		1	K95		1			0.57	
56	11	5	K107		1			0.87	
57		4	K106		1			0.86	
58		3	K103		1			0.92	
59		3	K104		2			0.77	
60		2	K101		1			1.01	
61		1	K82		1			0.53	
62			KFB1		1			<0.50	(0.00)
63			KFB2					missing	
64			KEB1		1			<0.50	(0.02)

E3

KEB 31	<0.50 (0.00)
KFB 31	<0.50 (0.02)
KEB 32	<0.50 (0.00)
KFB 34	<0.50 (0.02)
K 362	1.23

65 samples tested